ALAGAPPA UNIVERSITY

(A State University accredited with A+ Grade by NAAC (CGPA: 3.64) in the Third Cycle and Graded as Category-1 University by MHRD-UGC)

KARAIKUDI – 630 003

DIRECTORATE OF DISTANCE EDUCATION

M.A (SOCIOLOGY)

351 42

ECOLOGY AND SOCIETY

SYLLABI BOOK MAPPING TABLE

COGNITIVE NEURO PSYCHOLOGY

BLOCK IV: SOCIAL IMPACT ASSESSMENT OF ENVIRONMENTAL ISSUES, INTRODUCTION TO GLOBAL ENVIRONMENTALISM, TECHNOLOGY AND SOCIETY ENVIRONMENTAL JUSTICE **155-241**

UNIT XI Social impact assessment of environmental issues,- development, displacement, relocation and environmental problems.

UNIT XII Introduction to Global Environmentalism and Its Importance

UNIT XIII Study about the challenges to post materialism and the Environment today

UNIT XIV Technology and society Environmental justice, policy and action.

References:

- Arnold, David and Ramchandra Guha - Nature, Culture, Imperialism. Delhi: Oxford University Press, South Commission, 1989.
- Gadgil, Madhav and Ramchandra Guha - Ecology and Equity: The Use and Abuse ofNature in Contemporary India, New Delhi: OUP. 1996. • Giddens, Antony - Global Problems and Ecological Crisis in Introduction to Sociology. nd
- Michael Redclift - Development and the Environmental Crisis. New York: Meheun Co. Ltd., 1984.
- Munshi, Indra - "Environment" in Sociological Theory". New Delh is Sociological Bulletin, Vol.49, No.2, 2000.
- Schnaiberg Allan - The Environment, New York: Oxford University Press. 1980.

CONTENTS

Course Material Prepared by

DR.C. ANBUCHELVAN
M.Com., M.Phil., NET. M.BA., NET., M.Ed., M.Phil., NET., Ph.D.
Assistant Professor in Commerce,
AUCE
School of Education,
Alagappa University, Karaikudi -630003

UNIT- I

NATURE AND SCOPE OF ECOLOGY

Structure

1.1 INTRODUCTION

Generally, Ecology is considered as the science, which requires minimum time for its introduction to a common man. In the current era, the science of ecology has been matured into an honored and respected scholarly discipline, which not only deals with the field of research but also pays attention to the general conditions of today's environment.

Now, let us see the significance of gaining basic knowledge of ecology in our day-to-day life. Nowadays, the ecological knowledge is essential to understand the present day problems of nature regarding global warming, ozone depletion, flood situations, drought conditions, earthquake, tsunami, forest fires, cyclones and many other climatic problems associated with environmental.

Let us get an overview of the different aims of ecological study in the field of biology. Basically, the study of ecology aims to find out how the nature works and sustains itself by systemically following the principles of environmental science or ecology.

The major aim behind the study of this subject is to provide an account of divergent vital concepts of modern ecology especially, abiotic and biotic components of ecosystem, trophic levels, population ecology, community ecology, ecological succession, biomes, biodiversity, adaptation, vegetation, paedogenesis, biological interactions, precipitation patterns, biogeochemical cycles, environmental pollution and wildlife management.

Ecology also concentrates on the significant aspects of ecological energetic and structure of ecosystem emphasizing the comprehensive principles and concepts pertaining to the energy and matter transfer in ecological systems.

The major goal of ecology is to give a brief idea of different levels of organization involved in the formation of biosphere including individual species, population, community and ecosystems. Another aim of this study is to present an overview of the big picture of ecology and highlight the increasing importance of the subject in human affairs.

1.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Acquires knowledge about ecology
- ✓ Understand the concept, nature and scope of ecology
- ✓ Explain the importance of studying ecology

1.3 CONCEPT OF ECOLOGY

The prefix 'eco' has become synonymous with environmentally-friendly living. This green fad, however, has more to do with conservation biology than with ecology, where the prefix is borrowed from.

All organisms, no matter their size, their species, or where they live, need to interact with other organisms in their 'neighborhood' and with their environment in order to survive. Ecology is the scientific study of the interactions between organisms and their environment. The term comes from the Greek 'study of house', or the study of the place we live in.

The scope of ecology is huge, and it encompasses all organisms living on Earth and their physical and chemical surroundings. For this reason, the field is usually divided into different levels of study including: organismal ecology, population ecology, community ecology and ecosystem ecology.The term ecology is also referred to as **bionomics** which deals with the scientific study of distribution and abundance of life and the interactions between organisms and their environment.

Ecology is the science that studies the biota (living things), the environment, and their interactions. It comes from the Greek oikos = house; logos = study.

Ecology is the study of ecosystems. Ecosystems describe the web or network of relations among organisms at different scales of organization. Since ecology refers to any form of biodiversity, ecologists research everything from tiny bacteria in nutrient recycling to the effects of tropical rain forests on the Earth's atmosphere. Scientists who study these interactions are called ecologists

1.3.1. Definition of Ecology

Ecology is the branch of biology that studies how organisms interact with their environment and other organisms. Every organism experiences complex relationships with other organisms of its species, and organisms of different species. These complex interactions lead to different selective pressures on organisms. The pressures together lead to natural selection, which causes populations of species to evolve. Ecology is the study of these forces, what produces them, and the complex relationships between organisms and each other, and organisms and their non-living environment.

Check your progress-1

Notes: a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

1. What do you mean by Ecology?

…………………………………………………………………………
……………………………………………………………….........................
....

1.4 NATURE OF ECOLOGY

The fauna and flora of estuaries are typically capable of tolerating the above- mentioned changes. A comparison of an estuarine flora and fauna with that of a neighboring marine reef will show that there are many species, both plant and animal, which are either excluded by these changing conditions or avoid estuaries. Those that can tolerate the estuarine environment are often very successful and abundant in their chosen environment, e.g. sand prawns Callianassa kraussi and mudprawns Upogebia africana, mullet and fish that feed on the bottom or eat plankton.

A feature of the life styles of a variety of estuarine species is migration. Most of the larger fish species as well as invertebrates such as the estuarine swimming prawns and the mangrove crab Scylla serrata breed at sea where salinity, temperature and oxygen availability are much more constant than in an estuary. This favours the sensitive larval stages which then, at a later stage of development, move to the estuarine nursery grounds for a time to grow and develop into mature animals before migrating back to the sea. In invertebrates such as the swimming prawns or

fish like the Cape stumpnose Rhabdosargus holubi there is no return migration. Fish like grunter Pomadasys commersonnii may move repeatedly between marine spawning grounds and estuarine nursery or feeding grounds as at St Lucia. It is incorrect therefore to describe estuaries as breeding grounds, except in the case of resident species and even here it has been shown that apparent residents such as the mud prawn synchronise egg hatching to coincide with ebb tides such that newly hatched larvae are transported out to sea where they develop for a time before returning to the estuary (Wooldridge, 1994). From the above, it is clear that the time of the year that the mouth is closed or open is very important and can have a major effect on the nature of estuarine fauna."

If one considers the major habitats in estuaries it is clear that the different plant types often play a major role. Within the water column the phytoplankton, and microscopic single-celled plants (diatoms), provide a source of food for filter-feeders. The fixed, much larger plant species are extremely significant, whether in the form of the generally submerged seagrasses, intertidal saltmarshes of temperate regions or the mangroves of more tropical areas. The development of the seagrasses and to some extent the saltmarshes is greater in areas of clearer rather than turbid water which limits light penetration. Clearly mangroves are not affected by water turbidity except possibly in the very early stages of establishment of propagules (seedlings). Seagrasses can survive in non-tidal conditions where their distribution may be limited by salinity, as in the St Lucia system, but mangroves and salt marshes require a tidal regime for survival. The roots of mangroves cannot tolerate long term immersion in the waterlogged, low sediments where they are rooted. These macrophytes all contribute to the formation of a three dimensional environment and thereby provide major habitat types for sheltering small fish and invertebrates.

Estuaries depend on a basic input of carbon as a food supply. This may arise from a variety of sources, e.g. local plant growth in the shape of mangroves, reeds, saltmarsh vegetation, phytoplankton or microscopic one celled plants called diatoms which are found on intertidal mudflats. They also depend upon the input of leaves and other plant litter brought in from the catchment or even marine seaweeds washed in by tidal currents. Little of the macrophytic material mentioned above appears to be consumed in the fresh form. Instead, it contributes to the detrital food chain whereby it is colonized by bacteria and fungi which convert the often indigestible carbon material into more easily assimilable carbohydrates and proteins.

Tidal currents play a vital role in dispersing this material throughout the estuary thereby making it available to filter feeders. These organisms are represented by animals such as mudprawns, various mussel species and surface deposit feeders such as crabs which forage during low tide on the material deposited during the preceding high tide, or slack water period.

Fine detrital material in sediments is also used by many of the estuarine mullet species which, are often a very abundant component of estuarine fish communities.

1.5 SCOPE OF ECOLOGY

Ecology is a term coined from the Greek oikos, which means home, and the Latin and Greek roots of our word logic, which refers to scientific study or thought. Literally translated it is the study of the home. When first described in 1869 by Ernst Haeckel this new science dealt with the study of the relationships between an organism and its environment. At the time, in the wake of the Darwinian revolution in biology, emphasis was placed on the specific characteristics each organism had evolved to in order to be successful in its habitat. About one hundred years later Hans Krebs led a new group of ecologists who looked at groups of organisms organized into populations and communities. They defined the science as the study of the relationships which determine the distribution and abundance of organisms. These population and community ecologists were establishing the dynamic nature of the relationships that organisms and species have with one another. More recently ecologists have recognized this dynamic set of relationships in the existence of the ecosystem and the biosphere. Called systems or global ecologists, they look for cause and effect relationships in what happens within ecosystems and within the biosphere.

Today ecologists representing each school of thought continue to look at the evolution and adaptation of organisms, how species and organisms relate to one another and to the environment, and the nature of these relationships and the systems to which they belong within the biosphere.

The levels described above represent the hierarchy of ecology, an extension of the hierarchy of life which you learned in general biology. The hierarchy of life stipulates the all living organisms are composed of cells, organized into tissues, organized into organs, organized into the organism.

1.5.1 Ecology represents an extension of that hierarchy

The species (or organism) - individuals identified by their common genetic makeup, behavior, physical characteristics and ability to breed with one another. Not all biologists agree on the definition of species. Ecologists study the above characteristics which have evolved to make the species successful in its habitat.

1.5.1.1 The population

The individuals of a particular species within a given area. A population in nature will be defined within some kind of physiographic region such as a mountain range or contiguous habitat, and not by political

boundaries. Ecologists study the distribution and abundance of populations within their habitats. Individual populations adapt to the particular characteristics of their habitat and thus differ from one another. Preservation of each population is important in preserving the gene pool of successful characteristics for the continued adaptation and evolution of earth's biota. Data about population fluctuations alone does not shed light on the causes of these fluctuations.

1.5.1.2 The community

Consists of all the living organisms (the biota) in a given area and their interrelationships. Understanding the relationships between competitors, predators, prey, diseases, food supply etc. can shed light on the cause-effect relationships influencing population distribution and abundance.

1.5.1.3 The ecosystem

Both the biotic and abiotic components of a habitat and their interrelationships. Ecosystems form the working units of nature in which populations and communities work in balance with one another and with the non-living environment. But ecosystems are not homogeneous nor easily defined, and are therefore difficult to study scientifically.

1.5.1.4 The biosphere

All the ecosystems on earth and their interrelationships. Only with the advent of global monitoring, satellite imagery, and computer modeling have attempts to study the biosphere been seriously made. Biospheric data is still sketchy and few cause-effect relationships have been elucidated. But global ecology is acquiring urgency as global warming and other problems accelerate.

Check your progress-2
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

2. State the nature of Ecology.
3. Explain the scope of Ecology?

…………………………………………………………………………
…………………………………………………………………………
…………………………………………………………………………

1.6 IMPORTANCE OF STUDYING ECOLOGY

The study of ecology is important in ensuring people understand the impact of their actions on the life of the planet as well as on each other. Here are the reasons why ecology is important:

1.6.1 It helps in environmental conservation

Ecology allows us to understand the effects our actions have on our environment. With this information, it helps guide conservation efforts by first showing the primary means by which the problems we experience within our environment begin and by following this identification process, it shows us where our efforts would have the biggest effect.

Ecology also shows individuals the extent of the damage we cause to the environment and provides predictive models on how bad the damage can get. These indicators instil a sense of urgency among the population, pushing people to actively take part in conservation efforts and ensure the longevity of the planet.

1.6.2 Ensures proper resource allocation

Ecology equally allows us to see the purpose of each organism in the web of connectivity that makes up the ecosystem. With this knowledge, we are able to ascertain which resources are essential for the survival of the different organisms. This is very fundamental when it comes to assessing the needs of human beings who have the biggest effect on the ecosystem.

An example is human dependency on fossil fuels that has led to the increase of carbon footprint in the ecosystem. It is ecology that allows humans to see these problems which then calls for the need to make informed decisions on how to adjust our resource demands to ensure that we do not burden the environment with demands that are unsustainable.

1.6.3 Enhances energy conservation

Energy conservation and ecology is connected in that, it aids in understanding the demands different energy sources have on the environment. Consequently, it is good for decision making in terms of deciding resources for use as well as how to efficiently convert them into energy.

Without proper understanding of energy facts through ecology, humans can be wasteful in their use of allotted resources such as indiscriminate burning of fuels or the excessive cutting down of trees. Staying informed about the ecological costs allows people to be more frugal with their energy demands and adopt practices that promote conservation such as switching of lights during the day and investing in renewable energy.

1.6.4 Promotes eco-friendliness

With all the information and research obtained from ecology, it ultimately promotes eco-friendliness. It makes people aware of their environment and encourages the adoption of a lifestyle that protects the ecology of life owing to the understanding they have about it.

This means that in the long-term, people tend to live less selfishly and make strides towards protecting the interest of all living things with the realization that survival and quality life depends on environment sustainability. Hence, it fosters a harmonious lifestyle and assures longevity for all organisms.

1.6.5 Aids in disease and pest control

A great number of diseases are spread by vectors. The study of ecology offers the world novel ways of understanding how pests and vectors behave thereby equipping humans with knowledge and techniques on how to manage pests and diseases.

For example, malaria which is one of the leading killer diseases is spread by the female Anopheles mosquito. In a bid to control malaria, humans must first understand how the insect interacts with its environment in terms of competition, sex, and breeding preferences. The same applies to other diseases and pests. By understanding the life cycles and preferred methods of propagation of different organisms in the ecosystem, it has created impressive ways to device controls measures.

Check your progress-3
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

4. State the importance of studying ecology.

…………………………………………………………………………
…………………………………………………………………………………
…………………………………………………………………………………

1.7 LET US SUM UP

In this unit, you have learnt about the concept, meaning and definition of ecology, nature and scope of ecology and importance of studying ecology. Thus, the introduction unit of ecology would have brought you closer to know the concept, nature and scope of ecology and

usage in your educational career. This content might play a very important role in your service.

1.8 UNIT- END- EXERCISES

1. Define – Ecology.
2. Write down the Nature and scope of Ecology.
3. Explain the importance of studying ecology.

1.9 ANSWER TO CHECK YOUR PROGRESS

1. All organisms, no matter their size, their species, or where they live, need to interact with other organisms in their 'neighborhood' and with their environment in order to survive. Ecology is the scientific study of the interactions between organisms and their environment. The term comes from the Greek 'study of house', or the study of the place we live in.
   The scope of ecology is huge, and it encompasses all organisms living on Earth and their physical and chemical surroundings. For this reason, the field is usually divided into different levels of study including: organismal ecology, population ecology, community ecology and ecosystem ecology.The term ecology is also referred to as bionomics which deals with the scientific study of distribution and abundance of life and the interactions between organisms and their environment.
   Ecology is the science that studies the biota (living things), the environment, and their interactions. It comes from the Greek oikos = house; logos = study.
2. The fauna and flora of estuaries are typically capable of tolerating the above- mentioned changes. A comparison of an estuarine flora and fauna with that of a neighboring marine reef will show that there are many species, both plant and animal, which are either excluded by these changing conditions or avoid estuaries. Those that can tolerate the estuarine environment are often very successful and abundant in their chosen environment, e.g. sand prawns Callianassa kraussi and mudprawns Upogebia africana, mullet and fish that feed on the bottom or eat plankton.

3. **The population:** The individuals of a particular species within a given area. A population in nature will be defined within some kind of physiographic region such as a mountain range or contiguous habitat, and not by political boundaries.
   The community: Consists of all the living organisms (the biota) in a given area and their interrelationships.
   The ecosystem: Both the biotic and abiotic components of a habitat and their interrelationships.

The biosphere: All the ecosystems on earth and their interrelationships. Only with the advent of global monitoring, satellite imagery, and computer modeling have attempts to study the biosphere been seriously made. Biospheric data is still sketchy and few cause-effect relationships have been elucidated.

4. **It helps in environmental conservation:** Ecology allows us to understand the effects our actions have on our environment. With this information, it helps guide conservation efforts by first showing the primary means by which the problems we experience within our environment begin and by following this identification process, it shows us where our efforts would have the biggest effect.
   Ensures proper resource allocation: Ecology equally allows us to see the purpose of each organism in the web of connectivity that makes up the ecosystem.

   Enhances energy conservation: Energy conservation and ecology is connected in that, it aids in understanding the demands different energy sources have on the environment. Consequently, it is good for decision making in terms of deciding resources for use as well as how to efficiently convert them into energy.
   Promotes eco-friendliness: With all the information and research obtained from ecology, it ultimately promotes eco-friendliness.
   Aids in disease and pest control: A great number of diseases are spread by vectors. The study of ecology offers the world novel ways of understanding how pests and vectors behave thereby equipping humans with knowledge and techniques on how to manage pests and diseases.

1.10 SUGGESTED READINGS

1. Chitamber, JB (1990) Introduction to Rural Sociology. Wiley Eastern Pvt. Ltd, New Delhi.
2. Desai, AR (1978) Rural Sociology in India. Popular Prakashan, Bombay.
3. Sharan, AK (1999) Social Psychology. Commonwealth Publishers. New Delhi
4. Desai, A.R. 1959 Social Background of Indian Nationalism. Popular Prakashan, Bombay.
5. Dube, S.C. 1955. Indian Village. Cornell University Press: New York
6. Bertrand, Alvin Lee, ed. Rural sociology: an analysis of contemporary rural life. McGraw-Hill, 1958.

7. Gillette, John Morris. Constructive rural sociology. Sturgis & Walton Company, 1915.
8. Mukherjee, Ramkrishna 1979. Sociology of Indian Sociology. Allied Publishers, Bombay.
9. Singh, Yogendra. 1979. "On the History of Sociology in India" in Mohini Mullick (ed.) Social Enquiry: Goals and Approaches. Manohar, Delhi.
10. Srinivas, M.N. and Panini 1986. "The Development of Sociology and Social Anthropology in India" in T.K. Oommen & Partha N. Mukherji (eds) Indian Sociology Reflections of Introspections, Popular Prakashan, Bombay. Emergence of Sociology in India.
11. https://study.com/academy/lesson/what-is-ecology-definition-lesson-quiz.html

UNIT- II

SOCIOLOGICAL UNDERSTANDING OF ECOLOGY

Structure

2.1 INTRODUCTION

Social ecology is a highly dynamic interdisciplinary research field rooted in both social science and natural science traditions. The common denominator of this research field is not so much a shared label but a shared paradigm. The core axioms in this paradigm are that human social and natural systems interact, coevolve over time, with causality pointing in both directions. Social ecology deals with energy and society, land use and food production, the metabolism of societies, and the environmental impacts of human activities. It offers a conceptual approach to society–nature coevolution that integrates historical and current development processes and future sustainability transitions.

Most of the write-ups have not looked beyond outer appearances especially, at what lies beneath. This paper looks beyond what lies beneath by using sociological thinking and information to explain the human environment interactions. The paper uses three prominent sociological perspectives – functionalism, conflict, and interactionism, to examine the interactions. Functionalists identify desertification, deforestation, oil spillage, gas flaring and sea erosion as the source of environmental problems. To overcome these problems, man should be sensitive to both the manifest and latent consequences of their actions on the environment. Conflict theorists identify the inequality in the distribution of the world's resources as the sources of environmental problems. To overcome these problems, the government and oil companies should take bold steps to arrest deforestation, oil spillage, gas flaring and sea encroachment. Interactionists identify human actions and inactions as the sources of environmental problems. To overcome environmental problems, political actions involving human judgements, decisions, and choices, should be taken.

There is a problem with any attempt to take an ecological approach to the biosphere as a whole. It is so incredibly complicated and diverse that it is difficult to know where to begin. The number of living and non-living components defies description, and the number of possible interactions boggles the mind. There is also the problem of scale. Do we start with weather patterns that cover the whole globe, examine the impact of human settlements on the wildlife of the Gobi desert, or start by investigating the behaviour of ladybirds feeding on greenfly on a rose bush?

One approach to the investigation of anything big and complicated is to break it down into smaller, more manageable parts. We can then study these smaller chunks at a scale and level of detail that suits our purposes. This approach to complexity is called reductionism, because it involves reducing complex things to a collection of simpler parts. We can then take what we learn about how things work in the smaller parts and use it to try to understand the system as a whole.

2.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Understand the meaning of Sociology
- ✓ Understand the sociological understanding of ecology.

1.3 ECOSYSTEM

An **ecosystem** (from ‘ecological system’) is a collection of living things and the environment in which they live. The size and boundaries of an ecosystem, the bits to be studied, and the interactions to be investigated, are all determined by what we want to know. So an ecosystem can be large (a rainforest) or small (a pond) – and large ecosystems can often be broken down into a number of smaller ones. The important thing is that ecosystems are produced by living organisms interacting with each other and the physical environment.

Remember, all ecosystems involve:

- living organisms
- a physical environment (land, water, air)
- a source of energy to make the whole thing work.

For almost all of the Earth's ecosystems the ultimate source of energy is light from the sun.

Check your progress-1
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

2. What is ecosystem?

2.4 IDENTIFICATION AND NAMING

Before we can start to investigate how the organisms in an ecosystem interact with the environment we have to be able to give them names. The naming of living things has always had an important practical function, allowing us to understand the natural environment and exploit it more effectively. As soon as something has a name, all sorts of useful information can be attached to the label. Is this plant good to eat or poisonous? Is this animal rare or plentiful? The information can then be passed from one member of a group to another, and from one generation to the next.

Scientists face a similar need. To understand an ecosystem we need to be able to name and list the organisms involved in a precise and accurate way. Naming – like reductionism – is a strategy that allows us to impose some order on the complexity of the natural world.

Discrimination and identification have value beyond the obvious separation of edible from poisonous, valuable from worthless, or safe from dangerous. This is a means to gain an appreciation of the richness of the environment and our human place within it. The variety of the world is the product of hundreds of millions of years of evolution, of catastrophes survived, and of ecological expansion. To begin to grasp any of this complexity the first task is to identify and recognise its component parts: for biologists, this means the species of animals and plants, both living and extinct.

As Richard Fortey notes, the **species** is the fundamental unit of biological diversity. But what is a 'species'? And how do we distinguish one species from another?

In the field, scientists use two approaches to identify a species. Neither is without its problems.

- Members of the same species normally resemble each other.
- Male and female members of the same species can breed with each other to produce offspring that are also able to reproduce.

The first approach, appearance, is the most obvious one for most of us most of the time. We know that a robin is a robin because it looks like a robin – and the word 'species' is derived from the Latin verb specere ('to look at'). But appearances can be deceptive. Males and females of a given species may look different, and many organisms change their appearance as they mature (say, from tadpole to frog or from caterpillar to butterfly).

The second approach is also fairly straightforward in most cases. We take it for granted that our robin can breed with other robins to produce more robins, and that these robins will, in their turn, breed with other robins. But in some circumstances, members of closely related species can and do breed with each other. For example, the horse and the donkey can breed with each other, although the offspring – a mule – is unable to reproduce.

The concept of the species is important to biologists and to our understanding of the working of ecosystems and the biosphere. That's why I've spent some time on it here. The number of species in an ecosystem, or the biosphere as a whole, is an important indicator of its health. Perhaps it is best to think of species as more or less permanent varieties of living things. Many biologists feel that although the definition of a species has its difficulties, in most cases they know one when they see one. The exceptions to the rules are a useful reminder that the complexity of the natural world does not always conform to the categories we attempt to impose on it, and that as a consequence the use of scientific terminology requires judgement and common sense.

Check your progress-2
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

2. What is the reason for having scientific names in Latin?

INTERRELATIONSHIPS

It is interesting to contemplate an entangled bank, clothed with many plants of many kinds, with birds singing on the bushes, with various insects flitting about, and with worms crawling through the damp earth, and to reflect that these elaborately constructed forms, so different from each other, and dependent on each other in so complex a manner, have all been produced by laws acting around us. (Darwin, 1859/1985, p. 459)

So starts the final paragraph of Charles Darwin's famous book The Origin of Species. I have included it here because Darwin sets out beautifully, in one sentence, the complexity of the natural world.

First, he introduces us to an ecosystem – 'an entangled bank'. (I like to think of this as a hedgerow in my home county of Wiltshire. In my mind's eye, I see it on a warm summer's day: a jumbled mix of plants – flowers and trees – with insects crawling through the undergrowth and birds feeding in the branches.)

Darwin notes that this ecosystem consists of different populations of organisms that live together in a particular location or habitat – plants, worms, insects and birds. He also suggests that these organisms are dependent on each other in a number of complicated ways, that is, that they are interrelated. And finally, he writes that these interrelationships are the result of laws – processes – that operate throughout the natural world.

This notion of these interrelationships is so important to the study of the environment that it is worth pausing to examine it in a little more detail.

If a bird in Darwin's hedgerow – say, a robin – eats an earthworm, that's an interaction between the bird and the worm. This interaction has consequences for the bird (a good meal) and rather drastic consequences for the worm (the end of its life). If the worm is to live and play its part in producing another generation of worms, it must avoid being eaten by the robin. But the relationship has implications in both directions. If the bird is to live and help to produce the next generation of robins, it must find and eat a certain number of worms (and other things). This set of interactions produces a link, an interrelationship, between robins and worms.

Of course, the robin and the earthworm will interact with many other living things in many other ways at the same time. The robin will use plant material from the hedgerow to construct its nest, will compete with other robins for territory and mates, and may itself end up as a meal for a sparrowhawk or a cat.

The bird and the worm also depend on, and change, the physical environment of the hedgerow. For example, the bird needs oxygen from the atmosphere and its droppings add chemicals to the soil. The worm extracts nutrients from the soil, and alters its consistency by passing it through its body as it feeds. This makes it easier for the roots of the hedgerow's plants to find the water and the nutrients they need, and so on. It is already easy to see that the interrelationships in our 'entangled bank' are more complicated than we might have thought, and that they involve both the living and the non-living components of the ecosystem.

Check your progress -3
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

3. Look out for examples of interrelationships in the remainder of this course, especially organisms that rely on others for food. Note down any examples.

2.6 LOOKING FOR INTERRELATIONSHIPS

Look out for examples of interrelationships in the remainder of this course, especially organisms that rely on others for food. For example.

Some interrelationships, like the ones discussed in this section, are relatively straightforward and easy to spot. Others are far harder to see, and the vast majority remain unknown to science. Yet the answers to so many of our questions about the natural world depend on identifying and analysing these interactions. As we shall see, they explain why some animals are common in a given location and others are rare; why some plants are large and others are small; and why some organisms are found in some habitats but not in others. They also explain many of the distinctive characteristics of the physical environments in which organisms live out their lives.

In the next section, we shall look at how scientists go about identifying, studying and recording some of these interrelationships.

1.7 ECOLOGICAL HEALTH

Does all this matter? Why is it important to divide the biosphere into ecosystems and study the interrelationships they contain?

My first answer would have something to do with the wonder and fascination of nature itself. For me, and for many other people I suspect, what science can tell us about how the biosphere works – about the interrelationships involved – serves to make it more interesting and more beautiful?

There is, however, another pressing reason to study ecosystems. Preserving the ecosystems of the Earth, and their ability to sustain us, is now our responsibility. It is time to put ourselves back into the picture. If asked, we define ourselves in terms of nationality or employment or social class. But we belong to ecosystems as well, and the adaptability of human

beings means that we can be found in all sorts of environments from the poles to the equator.

As we have seen, all living things shape – and are shaped by – the physical environments that they inhabit. But no other species has our capacity to alter the world around it, to maximise the exploitation of its resources. And our influence is now global: modern patterns of business, food distribution and the use of natural resources mean that most of us have an indirect influence on ecosystems across the world.

The ways in which we have altered the ecosystems of the world include:

The use of biological resources, from hunting and fishing to cutting down forests

The use of physical resources, such as quarrying for rock and diverting water for irrigation systems

The use of energy resources, including the burning of wood and fossil fuels (coal, oil and gas)

The creation of artificial ecosystems, such as agricultural land for food production, and towns and cities as places for us to live.

The human population continues to grow and this, combined with the pressure for economic growth and development, will tend to increase our demands on other living things and the physical environment. To manage – or protect – an ecosystem we need to know how the living things it contains depend on each other, and how they depend on the air, soil and water in which they live. In large part, this means understanding the interrelationships involved, and so recognising the consequences of our actions for the ecosystem as a whole.

It is time to introduce a new term into our examination of ecosystems: ecological health. This term has become increasingly popular in discussions about the environment, although it is difficult to define or measure with any accuracy. It is possible to identify specific changes to an ecosystem, but any evaluation of its health is a matter of judgement not fact. Who decides whether an ecosystem is healthy? And on what grounds? Is a desert as healthy as a rainforest? Or does ecological health simply depend on a lack of human interference?

The fact that we find it hard to define ecological health doesn't mean that it has no value as a concept. We find it hard to define human health, but we recognise that it is important none the less. We know that some individuals are healthier than others and that certain things – a poor diet, for example – can have a negative effect. Like human health, ecological health is best thought of as a combination of many different things: the diversity, numbers and condition of the living organisms in an

ecosystem; the complexity of the food webs involved; and the quality of the air, soil and water that make up the physical environment.

We need to study the health of ecosystems to find out how to protect them. How much change has already taken place? What will be the long-term consequences of our actions? How can we increase an ecosystem's ability both to resist change (ecological resistance) and to recover from the changes that have already happened (ecological resilience)?

We are the most powerful actors in most ecosystems, yet until recently we have been largely unaware of the ecological consequences of the way we live our lives. A quick glance through the newspapers, however, indicates that we are now becoming increasingly concerned about our collective impact on ecological health, in terms of pollution, climate change and the use of finite biological and physical resources.

Check your progress -4
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

4. Explain the ecological health

2.8 LET US SUM UP

You should now understand that:

Ecology is a scientific approach to the study of the biosphere.

Ecosystems are created by the interrelationships between living organisms and the physical environments they inhabit (land, water, air). Ecosystems require a source of energy to make them work and for most, although not all, this is light from the sun.

To study ecosystems we have to start to identify the components involved and the interrelationships between them. We can list the living organisms by identifying the species involved.

Food chains and food webs are a way of mapping one type of interrelationship between the organisms in an ecosystem.

Human beings are part of ecosystems, as well as manipulators of ecosystems. As such we are dependent on, as well as responsible for, the ecological health of the ecosystems we inhabit.

2.9 UNIT- END- EXERCISES

1. Define - Ecology.
2. What do you mean by ecosystem?
3. Write about identification and naming
4. Explain the ecological health

2.10 ANSWER TO CHECK YOUR PROGRESS

An **ecosystem** (from 'ecological system') is a collection of living things and the environment in which they live. The size and boundaries of an ecosystem, the bits to be studied, and the interactions to be investigated, are all determined by what we want to know. Remember, all ecosystems involve: living organisms, a physical environment (land, water, air) and a source of energy to make the whole thing work.

For almost all of the Earth's ecosystems the ultimate source of energy is light from the sun.

1. Scientists use Latin for the formal names of living things. This means that people from different countries can be sure that they are talking about the same thing. You will come across these scientific names from time to time, so it is useful to know how they work.
2. If a bird in Darwin's hedgerow – say, a robin – eats an earthworm, that's an interaction between the bird and the worm. This interaction has consequences for the bird (a good meal) and rather drastic consequences for the worm (the end of its life). If the worm is to live and play its part in producing another generation of worms, it must avoid being eaten by the robin. But the relationship has implications in both directions. If the bird is to live and help to produce the next generation of robins, it must find and eat a certain number of worms (and other things). This set of interactions produces a link, an interrelationship, between robins and worms.
3. Of course, the robin and the earthworm will interact with many other living things in many other ways at the same time. The robin will use plant material from the hedgerow to construct its nest, will compete with other robins for territory and mates, and may itself end up as a meal for a sparrowhawk or a cat.
4. It is time to introduce a new term into our examination of ecosystems: ecological health. This term has become increasingly popular in discussions about the environment, although it is difficult to define or measure with any accuracy. It is possible to identify specific changes to an ecosystem, but any evaluation of its health is a matter of judgement not fact. Who decides whether an

ecosystem is healthy? And on what grounds? Is a desert as healthy as a rainforest? Or does ecological health simply depend on a lack of human interference?

The fact that we find it hard to define ecological health doesn't mean that it has no value as a concept. We find it hard to define human health, but we recognise that it is important none the less. We know that some individuals are healthier than others and that certain things – a poor diet, for example – can have a negative effect. Like human health, ecological health is best thought of as a combination of many different things: the diversity, numbers and condition of the living organisms in an ecosystem; the complexity of the food webs involved; and the quality of the air, soil and water that make up the physical environment.

2.11 SUGGESTED READINGS

1. Chitamber, JB (1990) Introduction to Rural Sociology. Wiley Eastern Pvt. Ltd, New Delhi.
2. Desai, AR (1978) Rural Sociology in India. Popular Prakashan, Bombay.
3. Sharan, AK (1999) Social Psychology. Commonwealth Publishers. New Delhi
4. Desai, A.R. 1959 Social Background of Indian Nationalism. Popular Prakashan, Bombay.
5. Dube, S.C. 1955. Indian Village. Cornell University Press: New York
6. Bertrand, Alvin Lee, ed. Rural sociology: an analysis of contemporary rural life. McGraw-Hill, 1958.
7. Gillette, John Morris. Constructive rural sociology. Sturgis & Walton Company, 1915.
8. Mukherjee, Ramkrishna 1979. Sociology of Indian Sociology. Allied Publishers, Bombay.
9. Singh, Yogendra. 1979. "On the History of Sociology in India" in Mohini Mullick (ed.) Social Enquiry: Goals and Approaches. Manohar, Delhi.
10. Srinivas, M.N. and Panini 1986. "The Development of Sociology and Social Anthropology in India" in T.K. Oommen & Partha N. Mukherji (eds) Indian Sociology Reflections of Introspections, Popular Prakashan, Bombay. Emergence of Sociology in India.

UNIT- III

KARL MARX AND EMILE DURKHEIM CONCEPT ON ENVIRONMENT

Structure

3.1 INTRODUCTION

Environmental sociology is typically defined as the sociological study of societal- environmental interactions. Environmental sociology is a sub discipline within the field of sociology that studies of the interactions between the physical environment, social organization, and social behavior. Environmental sociologists typically place special emphasis on studying the social factors that cause environmental problems, the societal impacts of those problems, and efforts to solve the problems. They also look at the social processes by which certain environmental conditions become socially defined as problems.

Environmental sociologists aim to understand environmentalism as a social movement, the ways in which members of society perceive environmental problems, and the origins of human- induced environmental decline and unequal distribution of environmental hazards. Since the end of world war 1, the study of the relationship between nature and human societies has gone through

3 main stages in sociology: human and urban ecology was developed by Chicago school sociologists during the 1920’s and 30’s. Environmental sociology emerged mostly in the United states during the 1970 and early 80’s and since the late 1980’s the third phase, “Eco sociology” has arisen.

Modern thought surrounding human-environment relations can be traced back to Charles Darwin. Darwin’s concept of natural selection suggested that certain social characteristics played a key role in the survivability of groups in the natural environment. Although typically taken at the micro-level, evolutionary principles, particularly adaptability, serve as a microcosm of human ecology.Work by Craig Humphrey and Frederick Buttel (2002) traces the linkages between Darwin's work on

natural selection, human ecological sociology, and environmental sociology.

Sociology developed as a scholarly discipline in the mid- and late-19th and early 20th centuries, in a context where biological determinism had failed to fully explain key features of social change, including the evolving relationship between humans and their natural environments. In its foundational years, classical sociology thus saw social and cultural factors as the dominant, if not exclusive, cause of social and cultural conditions. This lens down-played interactive factors in the relationship between humans and their biophysical environments.

Classical sociology had relatively little to say about the natural environment.The three acknowledged founders of the displine of sociology-Durkheim,Weber and Marx- addreseed some aspect of nature and society Montesquieus and Malthus wrote about the relationship between human societies and the natural environment. Critical theory's assessment of the Enlightenment and modern, industrial societies was the first attempt to systematically analyse the natural environment and its relation to human social practices. Recent theorists Habermas- the problems of nature in Modernity and Giddens-consequences of Modernity-work focused on the reciprocal relationship between human societies and natural environments.

Environmental sociology emerged as a coherent subfield of inquiry after the environmental movement of the 1960s and early 1970. The works of William R. Catton and Riley Dunlap- New Ecological Paradigm(NEP)Ulrich Becks-Risk Society-, Allan Schnaiberg-The Environment from Surplus to Scarcity. have been the most influential contributors at the theoretical core of environmental sociology. In the late 1970s, they called for a new holistic, or systems perspective. There is a general agreement that the first explicit use of 'environmental sociology was by Samuel Klausner in his 1971 book on Man in His Environment. Since the 1970s, general sociology has noticeably transformed to include environmental forces in social explanations. Environmental sociology has now solidified as a respected, interdisciplinary field of study in academia.

3.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ understand the meaning, definitions of Sociology
- ✓ understand the nature and Scope of the Sociology
- ✓ understand the environmental concepts of Karl Marx and Durkheim.

1.3 SCOPE, IMPORTANCE, NEED OF AWARENESS ON ENVIRONMENTL STUDIES

3.3.1 Scope and Importance

The technical definition of environmental sociology is the sociological study of how humans interact with the various aspects of the environment. In other words; how people treat the various aspects of the environment such as pollution, conservation and recycling. This type of study is one that is vital when it comes to helping find better ways for both nature and mankind to interact, propagate and thrive.

There are two schools of thought when it comes to environmental sociology; constructivism and realism. The constructivist's tend to be those individuals who develop ways that will help to improve the environment, however, they do tend to be on the more extremist side in their methods. The realists are those who want to help find the solutions needed to improve the environment.

The association between societal well-being and environmental quality is an important topic of Sociological inquiry. Environmental Sociology as a sub discipline within Sociology explores the various forms of interaction between human society and the environment. Catton and Dunlap A New Ecological Paradigm made them present Environmental Sociology as the study of interaction between society and its biophysical environment with a certain insistence given to the idea that every human society is dependent on the ecosystems in which it exists.

The environmental sociology of the 70's centers its attention on the study of green movement, energy issues, risks of catastrophes, public attitudes towards environmental questions, environmental policies and the quality of environment as a social problem.

Environmental sociology is also interested in a more general manner in human causes and social factors of environmental pollution, as well as in the social impacts of this pollution and of diminishing natural resources that is in the reciprocal relations between human societies and their biophysical environment.

Environmental sociology has different dimensions to it that their own research foci, environmental attitudes and the environmental movement, social impact analysis, risk assessment, responses to toxic siting and discovery natural hazards, research and so forth.. The inequitable social distribution of environmental hazards is another central area of Environmental Sociological research, with scholars examining the processes by which socially disadvantaged populations cometo experience greater exposures to myriad environmental hazards including natural disasters and unequal distribution of natural resources..It also helps to formulate equitable strategies to drive environmental degradation and also to build sustainable relationship between humans and the environment. Public opinion about environmental issues and environmental policies and the influence of the Green movement on these policies.

Environmental Sociologists seek to understand a variety of topics, including agrifood systems, the origins of human-induced environmental decline, the relationship between population dynamics, health, and the environment, and the role that elites play in harming the environment, environmental regulatory agency dynamics.

3.3.2 Need for Public Awareness

Environmental protection is a practice of protecting the natural environment on individual, organizational or governmental levels, for the benefit of both the natural environment and humans. Due to the pressures of population and technology, the biophysical environment is being degraded, It is essential to make the public aware of the formidable consequences of the Environmental Degradation, if not retorted and reformative measures undertaken, would result in the extinction of life. It is the prevention of environmental degradation that must become a part of all our lives. This has been recognized, and governments have begun placing restraints on activities that cause environmental degradation and ways to increase awareness of environmental issues worldwide.

Many actions can be employed to educate and raise environmental awareness in the community. These actions will empower people to participate effectively in democratic change towards a Better environment for all. Recognition on the complexity of environmental issues will be realized and the need to develop solutions collectively accepted. In environmental education everyone has something to learn and something to contribute.

Environmental protection is influenced by three interwoven factors: environmental legislation, ethics and education. Each of these factors plays its part in influencing national-level environmental decisions and personal-level environmental values and behaviors. For environmental protection to become a reality, it is important for societies to develop each of these areas that, together, will inform and drive environmental decisions.

Awareness of climate change and other environmental concerns has increased in the last few decades. Day celebrations like Environmental day. Population Day Ozone Day, Earth Day etc and practicing 3Rs Principle promoted awareness among people.. However, there is still a lot of work to be done to increase public awareness, particularly in underdeveloped countries.

The United Nations Environment Programme (UNEP) has outlined several important programmes for environmental awareness. such as, environmental awareness campaigns awareness through medias, Environmental education etc.

In developed countries and urban areas, the use of print, broadcast, and Internet media can be a great way to increase education and awareness. By working with the media, government agencies and nonprofit organizations can help spread their message, either by holding press briefings, issuing printed press releases, or even setting up online databases that can be used as information centers. Information centers can be useful

tools to educate both the public and journalists about environmental concerns

Thirty percent of the world's population is under the age of eighteen, according to UNEP, which is why educating children and young adults about environmental problems is crucial to long- term success. This will help them foster a sense of responsibility and "proactive citizenship," so that when they become adults they will make choices that help the environment rather than harm it.

Many schools, however, do not currently teach their students about environmental issues. Integrating environmental education into current science classes or teaching environmental science as a separate discipline is one of the best ways to educate children and teens about environmental problems, particularly if the classes involve some sort of "hands-on" learning, like starting a garden

.developing healthy eco-friendly behavior, making manure from Domestic waste, proper and healthy disposal behavior, minimize e-waste and practice green computing etc. which promote value based sustainable development.

There have been several Government and Non-Government Organisations that are working towards environmental protection in our country. They have led to a growing interest in environmental protection and conservation of nature and natural resources. Among the large number of institutions that deal with environmental protection and conservation, a few well- known organizations are BSI(Botanical Survy of India) and ZSI(Zoological survy of india.), and NGOs like the BNHS-M(Bombay Natural History Society), WWF-1(World Wide Fund for Nature – India(WWF-1),CSE(Center for Science and Environment-New Delhi),CEE-(Centre for Environment Education-Ahmedabad) ,EEC(Environment Education Centre-Madras, BVIEER (Bharat Vidyapeeth Institute of Environment Education and Research-Pune),UKSN (Uttarkhand Seva Nidhi),SACON(Salim All Center for Ornithology and Natural History –Coimbatore,WLL (Wildlife Institute of India-Dehradun),MCBT(Madras Crocodile Bank Trust-Madras)etc.

There are several internationally known environmental thinkers. They looked at the environment from a completely different perspective. Charls Darwin.Ralph Emerson,HenryThoreau, John Muir,Aldo Leopoid. Rachel Carson,Riley Dunlap and William Michelson,Allen Schnaiberg, Ulrich Beck,E.O Wilson are few among them, There have been a number of environmentalists, Administrators, Legal experts, Educationalists, Journalists, Scientists who have been instrumental in shaping the environmental history in our country such as. S.P.Godrej, M.S Swaminathan, MadhavGadgil, M.C.Mehta,Anil, Agarwal, Sunderlal Bahuna etc.

The UNESCO and the Government of Greece, organized International Conference on Environment and Society:primarily to highlight the role of education and public awareness for sustainability. Progress in this direction is thus critically dependent on education and public awareness.

3.4 ENVIRONMENT

The sum total of all surroundings of a living organism, including natural forces and other living things, which provide conditions for development and growth as well as of danger and damage. The word environment is derived from the French verb 'environer' which means to 'encircle or surround.' Thus our environment can be defined as the physical, chemical and biological world that surround as well as the complex of social and cultural affecting an individual or community. This broad definition includes the natural world and the technological environment as well as the cultural and social context that shape human lives. It includes all factors living and non living that affect an individual organism or population at any point in the life cycle. Set of circumstances surrounding a particular occurrence and all the things that surround us.

It is essentially a multidisciplinary approach and its components include biology, geology, chemistry, physics, engineering, sociology, health sciences, anthropology, economics, statistics and philosophy. .Environmental science is a Interdisciplinary subject which deals with each and every aspect of life i.e. related with us. It requires the knowledge of various other subjects like biology, chemistry, physics, statistics, micro-biology, bio-chemistry, geology, economics, law, sociology etc

Environmental science integrates physical and biological sciences, to the study of the environment, and the solution of environmental problems. Environmental science provides an integrated, quantitative, and interdisciplinary approach to the study of environmental systems.Related areas of study include environmental studies and environmental engineering. Environmental studies incorporates more of the social sciences for understanding human relationships, perceptions and policies towards the environment. Environmental engineering focuses on design and technology for improving environmental quality in every aspect. Environmental scientists work on subjects like the understanding of earth processes, evaluating alternative energy systems, pollution control and mitigation, natural resource management, and the effects of global climate change. Environmental issues almost always include an interaction of physical, chemical, biological and socio-cultural processes. Environmental scientists bring a systems approach to the analysis of environmental problems.

Environmental science came alive as a substantive, active field of scientific investigation in the 1960s and 1970s driven by (a) the need for a multi-disciplinary approach to analyze complex environmental problems, (b) the arrival of substantive environmental laws requiring specific environmental protocols of investigation and (c) the growing public awareness of a need for action in addressing environmental problems. . It is a relatively new field of study which has evolved from integrated use of many disciplines.. It creates awareness and understanding of environmental

concepts which may be scientific, social and ecological systems thereby providing a platform for solution to various environmental problems

Check your progress-1
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.
3. What are the scope and importance of environment?

3.5 KARL MARX AND EMILE DURKHEIM ON ENVIRONMENT

The three main sociological traditions, it is that associated with Karl Marx that has provoked the most extensive response from present-day environmental interpreters. Marxist thought usually sees any society as a system of societal relations. This allows for an understanding that social production of goods depends on relations between individuals as well as between people and nature.. Marx saw science and society in rational terms, believing that science was a progressive and liberating force, one that would enable humankind to gain control over nature and therefore to better control their chosen path in life. According to Marx, the appropriation of natural resources in this manner were only possible in a specific social setting.. The interactions between humans and their environment cannot provide a source of change in society; this can only occur between groups of people. Marxist ideology relies heavily on the idea that economic development under capitalism involves the creation of value as resources are transformed into commodities. The problem is, there cannot be creation without destruction. In order to create value, we must destroy and sully valuable natural resources; not valuable as commodities, but as a life sustaining matrix upon which we all rely. The value of natural resources must always be weighed against the long term consequences of their use.

Marxist social theory and the environment

Karl Marx (1818-83) and Friedrich Engels (1820-95) and their political and social theory of Marxism is the next significant body of nineteenth-century social theory in which the environment played a particular (through ambiguous) role.Marx and Engels believed that social conflict between the two principle classess in the society, that is capitalist and the proletariat(workers)not only alienates ordinary people from their jobs but also leads to their estrangement from nature itself. In their famous work The Communist Manifesto (first published in Germany in 1848), after stating that the bourgeoisie (the owners of capital, the ruling class in

Marxist terms) has subjected 'the country to the rule of the towns' and 'rescued a considerable part of the population from the idiocy of rural life' (1967:84), Marx and Engels go on to recognize the great achievements of industrial capitalism.

It is fair to say that historically classical Marxism, being a product of its time, did not address the range and significance of ecological issues that have come to play such an important part in late twentieth-century political and ethical discourse

As Marx and Engles said, nature's forces had to be subjected to man. Those who objected tothis domination and purely instrumental view of the nonhuman natural world were either simple-

Minded sentimentalists (poets such as Words worth) or reactionaries who were really motivated by a defence of a feudal, aristocratic social order based on a 'pre-industrial' and 'pre-modern' system of land ownership .

The starting point for Marx is the brute fact that humans have to produce their own means of subsistence. What he means by this is that humans have to use their labour power, skills and creativity to transform the nonhuman world into the things, goods and services they need to survive. This, according to Marx and Engles, is what distinguishes humans from the nonhuman world. As they put it, 'Men can be distinguished from animals by consciousness, by religion or anything else you like. They themselves begin to distinguish themselves from animals as soon as they begin to produce their means of subsistence…. The nature of individuals thus depends on the material conditions determining their production' (Parsons, 1977:137). Although, like all other species, humans are dependent upon their environment for resources in order to survive, Marx held that humans were different from the rest of nature because they did not simply take from nature whatever their natural environment afforded. Except in the 'primitive' hunter-gatherer stage of human evolution, the story of humanity was one where by their collective actions they transformed their environment, and by their labour power transformed the 'raw materials' of the nonhuman environment into usable and valuable artefacts; such as dwellings from simple huts to large cities, clothing from animal furs to designed fashions, and a whole range of goods, things and commodities

Marxist social theory was premised on the idea that the nonhuman world if left to itself, unused and untouched by human hands, was 'valueless'. Whatever was of value in the world was the product of human labour and creativity. This was the essence of the Marxist labour theory of value. The problem with the capitalist organization of industrial society for Marxists was that the social organization of this society was such that the vast majority of the people were denied the full fruits of their labour.

Because under capitalism, those who owned the capital, the factories, the machinery and so on were in a stronger economic position than those who had simply their labour power to sell, the latter were, according to Marx, exploited. Thus, while the industrial mode of production (including the factory system, the extensive use of science and technology, and a complex division of labour), was premised on the intensive exploitation of the nonhuman world, its capitalist character also

meant that the workers or the proletariat in Marxist terminology were also exploited.

Marxism expresses the thoroughly ‘modern’ view that human social progress (and in this case ‘liberation’ from a capitalist exploitative social order) is dependent upon the exploitation and domination of the nonhuman environment.

Marx’s basic critique of capitalist industrial society was that its relations of production (particularly those relating to private property) were holding back what he called the forces of production (technology, science, the division of labour) from producing even greater levels of material wealth and affluence. In other words, capitalists was not exploiting the nonhuman world efficiently enough to the fullest extent possible; nor did it distribute the wealth created in a just manner.For Marxists, it is one of the great contradictions of capitalism that the social order which has put a man on the moon is unable to eradicate poverty, homelessness and many other socio- economic problems. Marx’s vision of a post capitalist society is premised on the existence of ‘material abundance’: that is, communist society is one which has transcended material scarcity. Unlike all previous human society in which there have never been enough material goods for everyone, and hence every social order has to have some principles or institutions for distributing what goods are available, Marx communist society was one in which the principle of distribution was ‘to each according to their needs’. In other words Marx was envisaging that under communism the exploitation of nature and the production of wealth, goods and services would be so efficient and productive that all human material needs would be met. Where as under capitalism only a few can afford expensive things. Free of constraining, inefficient as well as illegitimate capitalist property relations, human beings would be in a position to use the world around them as they saw fit and to meet their material needs and wants. Nobody would go hungry or homeless in this vision of a future post capitalist society and more than this, getting rid of capitalist relations of production would enable a more rational, planned, intensive and ultimately more productive exploitation of the non human environment. Human liberation and emancipation were to be achieved at the price of the greater exploitation and intensification of the instrumental use of nature.

A more ‘environmentally sensitive’ interpretation of Marxism may be found in some of the works of Engels, though the emphasize is on the urban environment rather than the natural one. In his “The Condition of The Working Class in England” Engels described the degrading, filthy and unhealthy urban and working environments of the emerging urban working class, and suggested that the coming communist society would create less unhealthy, unsafe and more aesthetically pleasing urban, leaving and working environments.

Marx may be seen as wanting to intensify the exploitation of the natural environment which capitalism had begun, but to end the exploitation of humans by humans and to distribute the fruits of the exploitation of the environment more equally than under capitalism, as well as viewing his

Vision of a socialist society as motivated, in part by a desire to overcome the alienation between humanity and nature. Marxian thought contains the potential for a more sustainable relationship between human society and nature.

Emile Durkheim

Durkheim is probably the least likely to be recognized as an environmental commentator. In large part, this reflects his deliberate decision to elevate social facts over 'facts of a lower order'. (that is, psychological, biological)

For Durkheim, a social fact is 'any way of acting, whether fixed or not, capable of exerting over the individual an external constraint'. This constraint is normally manifested in the form of law, morality, beliefs, customs and even fashions.

To Durkheim, men were creatures whose desires were unlimited. Unlike other animals, they are not satiated when their biological needs are fulfilled. "The more one has, the more one wants, since satisfactions received only stimulate instead of filling needs." It follows from this natural insatiability of the human animal that his desires can only be held in check by external controls, that is, by societal control. Society imposes limits on human desires and constitutes "a regulative force [which] must play the same role for moral needs which the organism plays for physical needs." In well-regulated societies, social controls set limits on individual propensities so that each individual knows the eventual limit to his/her activity. Durkheim did distinguish the social realm from the psychic, biological and mineral realms, yet he saw society as a phenomenon of nature. This can be witnessed in many plant or animal settings, where associations are formed which enable the species to survive or flourish. Of the traditional approaches, Durkheim's does lend credence to the idea that environmental problems can be understood within the context of cultural production and reproduction. Durkheim's positivism and constructivism gave us the legacy of examining environmental problems as a science with observable consequences and socially constructed causes.

Although Durkheim formulated an organismic theory of society where each organism must function in its own place and time in order for the whole to remain healthy, he neglected to bring the environment in which that work is being done into the picture. He did not however insist as his contemporaries did that nature was "socially produced". Durkheim introduced the notions of agency and structure to sociological theory; agency is defined as the power that humans have to operate independently of the constraining social structure. The structure itself is dependent on agency for its existence, it is comprised of such things as laws, conventions, taboos and so on. An interesting result of Durkheim's theories of agency structure is that they can be subversively used to undermine the traditional lack of attention paid to environmental problems. Agency would seemingly allow us to either neglect or care for the environment as we so choose, but the social structure could dictate certain modes of action which can be oriented towards a conservationist perspective. Further, if the environment itself were to be seen as the governing structure within which

humans must operate, with the laws of nature guiding human agency, it seems against (human) nature to destroy the very structure which supports our meagre selves.

Check your progress - 2
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

2. State the concepts of Karl marx and Emile on environment?

3.6 LET US SUM UP

Karl Marx on Environment :Marx, who is again the one of three fathers of sociology, is known by his conflict theory. Actually, Marx did not pay much attention to the environment, but his theories also are connected to environment, being so, he made important point to the environmental sociology. He questions that after industrialization, not only the harvest and industry relationship became an issue, it came the system which pre and post existence of nature. Nature is the source for humankind for produce, and it is polluted for our waste, means; a creation new commodity is a new waste which damages human health/nature. Another point, the conflict that occurs after industrialization process, was alienation not only for workers, but also for ordinary people to nature. The ‘’capitalist agriculture’’ is the name of damaging nature by human because of capitalism. To have the product faster, you don’t consider the welfare of human and soil. Also, the capitalism sees as a factor that causes overpopulation and resource decreasing in nature to alienation people, and nature which he sees we were together oldies.

Emile Durkheim on environment: EmileDurkheim who is one of three fathers of sociology is in functionalist approach. He defines the humankind who wants to be unlimited, and sees society as a power which can control human’s action in the way of that the regulating power for the morality also can apply for physical desires, so the external power is the only way to control human. Why Durkheim tells this is that the environment is the place where human is on and human gets all needs from environment, but also harm the nature. Here, Durkheim defends the balance for human and environment. The ‘’mutualism’’ (mutualism is living together by having contribute each other) is the possible explanation/life style for the balance. Also ‘’commensalism’’ (living together not contribute and not harm, neutral) is the way to have balance between human and environment. We can predict this view of Durkheim from ‘’organic solidarity’’ which is what Durkheim defines modern societies. Everything is in harmony, has its specific role; we can realize that he supports the same relationship between human and nature. On the

other hand, Durkheim separated the social field from physical, ecological and mineral fields and for the environmental problems which derive from humankind; he has an idea that environmental problems can be understood within the context of cultural production and reproduction. As a P.S, his positivism shows us the environmental problems as a science with observable results and socially reasons.

3.7 UNIT- END- EXERCISES

1. What is the need for awareness on environment?
2. State the importance of Environment.
3. Explain the environment concepts of Karl Marx and Emile.

3.8 ANSWER TO CHECK YOUR PROGRESS

1. The technical definition of environmental sociology is the sociological study of how humans interact with the various aspects of the environment. In other words; how people treat the various aspects of the environment such as pollution, conservation and recycling. This type of study is one that is vital when it comes to helping find better ways for both nature and mankind to interact, propagate and thrive.

   There are two schools of thought when it comes to environmental sociology; constructivism and realism. The constructivist’s tend to be those individuals who develop ways that will help to improve the environment, however, they do tend to be on the more extremist side in their methods. The realists are those who want to help find the solutions needed to improve the environment.

   Environmental Sociologists seek to understand a variety of topics, including agrifood systems, the origins of human-induced environmental decline, the relationship between population dynamics, health, and the environment, and the role that elites play in harming the environment, environmental regulatory agency dynamics.

2. Karl Marx on Environment: Marx, who is again the one of three fathers of sociology, is known by his conflict theory. Actually, Marx did not pay much attention to the environment, but his theories also are connected to environment, being so, he made important point to the environmental sociology. He questions that after industrialization, not only the harvest and industry relationship became an issue, it came the system which pre and post existence of nature. Nature is the source for humankind for produce, and it is polluted for our waste, means; a creation new commodity is a new waste which damages human health/nature. Another point, the conflict that occurs after industrialization process, was alienation not only for workers, but also for

ordinary people to nature. The ‘’capitalist agriculture’’ is the name of damaging nature by human because of capitalism. To have the product faster, you don’t consider the welfare of human and soil. Also, the capitalism sees as a factor that causes overpopulation and resource decreasing in nature to alienation people, and nature which he sees we were together oldies.

3. EmileDurkheim who is one of three fathers of sociology is in functionalist approach. He defines the humankind who wants to be unlimited, and sees society as a power which can control human’s action in the way of that the regulating power for the morality also can apply for physical desires, so the external power is the only way to control human. Why Durkheim tells this is that the environment is the place where human is on and human gets all needs from environment, but also harm the nature. Here, Durkheim defends the balance for human and environment. The ‘’mutualism’’ (mutualism is living together by having contribute each other) is the possible explanation/life style for the balance. Also ‘’commensalism’’ (living together not contribute and not harm, neutral) is the way to have balance between human and environment. We can predict this view of Durkheim from ‘’organic solidarity’’ which is what Durkheim defines modern societies. Everything is in harmony, has its specific role; we can realize that he supports the same relationship between human and nature. On the other hand, Durkheim separated the social field from physical, ecological and mineral fields and for the environmental problems which derive from humankind; he has an idea that environmental problems can be understood within the context of cultural production and reproduction. As a P.S, his positivism shows us the environmental problems as a science with observable results and socially reasons.

3.9 SUGGESTED READINGS

3. Bottomore, T. (1983). The Dictionary of Marxist Thought. Blackwell Publication.

2. Coser, L.A. (1971). Masters of Sociological Thoughts: Ideas in Historical and Social Context. Harcourt Brace Jovanovich. Inc., New York.

3. Giddens, A. (2009). Capitalism and Modern Social Theory: An Analysis of the Writings of Marx, Durkheim, and Max Weber. Cambridge University Press; First edition.

4. Giddens, A. and Held, D. (1982). Classes, Power, and Conflict: Classical and Contemporary Debates. University of California Press, Berkerly.

5. Marx, K and Engels, F. (1848). Manifesto of Communist Party, Marx and Engels Selected Work, Vol.1, Progress Publisher, Moscow, 1969, pp.98-137.

https://www.marxists.org/archive/marx/works/download/pdf/Manifesto.pdf

UNIT- IV

INTRODUCTION OF ENVIRONMENTAL SOCIOLOGY

Structure

4.1 INTRODUCTION

Environment can be defined as the sum total of materials and forces surrounding the living organism. Gisbert defined environment as "anything immediately surrounding an object and exerting a direct influence on it." It is the sum total of conditions that surrounds us at a given point at space and time. Thus, environment is comprised of the interacting systems of physical, biological and cultural elements and these are interlinked individually and collectively in various ways.

The word environment is derived from the French verb 'environer' which means to 'encircle or surround.' Thus our environment can be defined as the physical, chemical and biological world that surround as well as the complex of social and cultural affecting an individual or community. This broad definition includes the natural world and the technological environment as well as the cultural and social context that shape human lives. It includes all factors living and non living that affect an individual organism or population at any point in the life cycle. Set of circumstances surrounding a particular occurrence and all the things that surround us.

It is essentially a multidisciplinary approach and its components include biology, geology, chemistry, physics, engineering, sociology, health sciences, anthropology, economics, statistics and philosophy. .Environmental science is a Interdisciplinary subject which deals with each and every aspect of life i.e. related with us. It requires the knowledge of various other subjects like biology, chemistry, physics, statistics, micro-biology, bio-chemistry, geology, economics, law, sociology etc.

Environmental science integrates physical and biological sciences, to the study of the environment, and the solution of environmental problems. Environmental science provides an integrated, quantitative, approach to

the study of environmental systems. Related areas of study include environmental studies and environmental engineering. Environmental studies incorporate more of the social sciences for understanding human relationships, perceptions and policies towards the environment. Environmental engineering focuses on design and technology for improving environmental quality in every aspect. Environmental scientists work on subjects like the understanding of earth processes, evaluating alternative energy systems, pollution control and mitigation, natural resource management, and the effects of global climate change. Environmental issues almost always include an interaction of physical, chemical, biological and socio-cultural processes. Environmental scientists bring a systems approach to the analysis of environmental problems.

Environmental science came alive as a substantive, active field of scientific investigation in the 1960s and 1970s driven by (a) the need for a multi-disciplinary approach to analyze complex environmental problems, (b) the arrival of substantive environmental laws requiring specific environmental protocols of investigation and (c) the growing public awareness of a need for action in addressing environmental problems. It is a relatively new field of study which has evolved from integrated use of many disciplines. It creates awareness and understanding of environmental concepts which may be scientific, social and ecological systems thereby providing a platform for solution to various environmental problems.

Environment regulates the life of the organisms including human beings. Man being the most intelligent creature, interacts with the environment more vigorously than does any other organism. There is no end to human needs. With the growth of human civilization, there has been an exponential increase in the demands for materials. As a result, man has started exploiting nature mercilessly to meet the demands of his comfort and to feed the mouths of increased population. Though deterioration of environmental condition is brought about by extreme events like natural catastrophes and calamities, man-made hazards, physical pollution and social pollution, man has a major role in it.

The earth has only a certain amount of air, water, soil, raw materials and minerals- the natural resources. But these resources are being recklessly exploited, consumed or wasted. It is feared that many of these non-renewable resources will be exhausted soon. It is impossible to replace or recreate fuels like coal, gas and oil. Thus, we human beings, exploit, alter, destroy and pollute the environment around us. But as a rational and social creature we also realize the importance of environment and hence make efforts for its conservation or protection in order to ensure for ourselves a healthy and comfortable living.

4.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Acquires concepts and meaning of environmental sociology
- ✓ Understand the concepts and trends of environmental sociology

1.3 CONCEPTS OF ENVIRONMENTAL SOCIOLOGY

4.3.1 Existential dualism

The duality of the human condition rests with cultural uniqueness and evolutionary traits. From one perspective, humans are embedded in the ecosphere and coevolved alongside other species. Humans share the same basic ecological dependencies as other inhabitants of nature. From the other perspective, humans are distinguished from other species because of their innovative capacities, distinct cultures and varied institutions. Human creations have the power to independently manipulate, destroy, and transcend the limits of the natural environment (Buttel and Humphrey, 2002: p.47).

Support for each perspective varies among different communities. Biologists and ecologists typically put more weight on the first perspective. Social scientists, on the other hand, emphasize the second perspective. This division has shaped the foundation for the primary paradigms of environmental sociology.

4.3.2 Societal-environmental dialectic

In 1975, the highly influential work of Allan Schnaiberg transfigured environmental sociology, proposing a societal-environmental dialectic. This conflictual concept has overwhelming political salience. First, the economic synthesis states that the desire for economic expansion will prevail over ecological concerns. Policy will decide to maximize immediate economic growth at the expense of environmental disruption. Secondly, the managed scarcity synthesis concludes that governments will attempt to control only the most dire of environmental problems to prevent health and economic disasters. This will give the appearance that governments act more environmentally conscious than they really do. Third, the ecological synthesis generates a hypothetical case where environmental degradation is so severe that political forces would respond with sustainable policies. The driving factor would be economic damage caused by environmental degradation. The economic engine would be based on renewable resources at this point. Production and consumption methods would adhere to sustainability regulations.

These conflict-based syntheses have several potential outcomes. One is that the most powerful economic and political forces will preserve the status quo and bolster their dominance. Historically, this is the most common occurrence. Another potential outcome is for contending powerful

parties to fall into a stalemate. Lastly, tumultuous social events may result that redistribute economic and political resources.

4.3.3 Treadmill of production

In 1980, Schnaiberg developed a conflict theory on human-environment interaction. The theory is that capitalism is driven by higher profitability and thereby must continue to grow and attract investments to survive in a competitive market. This identifies the imperative for continued economic growth levels that, once achieved, accelerate the need for future growth. This growth in production requires a corresponding growth in consumption. The process contains a chief paradox; economic growth is socially desired but environmental degradation is a common consequence that in turn disrupts long-run economic expansion (Schnaiberg 1980).

Check your progress-1
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

4. Explain the concepts of Environmental Sociology?

…………………………………………………………………………
……………………………………………………………….........................
....

4.4 MEANING OF ENVIRONMENTAL SOCIOLOGY

The association between societal well-being and environmental quality is increasingly becoming a topic of sociological interest. Environmental sociology is a sub discipline within the field of sociology that studies of the interactions between the physical environment, social organization, and social behavior. Environmental sociologists typically place special emphasis on studying the social factors that cause environmental problems, the societal impacts of those problems, and efforts to solve the problems. They also look at the social processes by which certain environmental conditions become socially defined as problems.

For instance, environmental sociologists aim to understand environmentalism as a social movement, the ways in which members of society perceive environmental problems, and the origins of human-induced environmental decline. Another area of environmental sociological research is the unequal distribution of environmental hazards. These researchers examine the process by which socially disadvantaged populations come to experience greater exposures to various environmental hazards, including natural disasters.

Sociology of the environment is a new field of sociology that has developed in relation to people's growing concern about environmental issues. It has a dual focus. On the one hand it deals with the ways in which people in society relate to the natural world. On the other hand it deals with 'environmentalism' as a social movement; the development of concern about the environment and the social context of actions about the environment. It could be argued that the way people relate to the natural world has always been a concern of sociologists. When Karl Marx talks about 'production' he is talking about a relationship between workers and the natural objects they work up as products. Anthropologists have always believed that natural objects have symbolic significance and this approach can also be used by sociologists. What is the social meaning of the kangaroo, for example? The environmentalist movement as a topic of sociology can be related to the growing concern with environmental problems. The birth of the movement is normally dated to the publication of Silent Spring by Rachel Carson in 1962, a book which documented the effect of toxic pesticides on birds and other animals. The 'hippy' movement that developed later in the 1960s was the first large-scale popular subculture to develop themes from environmentalism.

The technical definition of environmental sociology is the sociological study of how humans interact with the various aspects of the environment. In other words; how people treat the various aspects of the environment such as pollution, conservation and recycling. This type of study is one that is vital when it comes to helping find better ways for both nature and mankind to interact, propagate and thrive.

There are two schools of thought when it comes to environmental sociology; constructivism and realism. The constructivist's tend to be those individuals who develop ways that will help to improve the environment; however, they do tend to be on the more extremist side in their methods. The realists are those who want to help find the solutions needed to improve the environment.

The association between societal well-being and environmental quality is an important topic of Sociological inquiry. Environmental Sociology as a sub discipline within Sociology explores the various forms of interaction between human society and the environment. Catton and Dunlap A New Ecological Paradigm made them present Environmental Sociology as the study of interaction between society and its biophysical environment with a certain insistence given to the idea that every human society is dependent on the ecosystems in which it exists.

The environmental sociology of the 70's centers its attention on the study of green movement, energy issues, risks of catastrophes, public attitudes towards environmental questions, environmental policies and the quality of environment as a social problem.

Environmental sociology is also interested in a more general manner in human causes and social factors of environmental pollution, as well as in the social impacts of this pollution and of diminishing natural resources that is in the reciprocal relations between human societies and their biophysical environment.

Environmental sociology has different dimensions to it that their own research foci, environmental attitudes and the environmental movement, social impact analysis, risk assessment, responses to toxic sitting and discovery natural hazards, research and so forth. The inequitable social distribution of environmental hazards is another central area of Environmental Sociological research, with scholars examining the processes by which socially disadvantaged populations come to experience greater exposures to myriad environmental hazards including natural disasters and unequal distribution of natural resources..It also helps to formulate equitable strategies to drive environmental degradation and also to build sustainable relationship between humans and the environment. Public opinion about environmental issues and environmental policies and the influence of the Green movement on these policies.

Environmental Sociologists seek to understand a variety of topics, including agrifood systems, the origins of human-induced environmental decline, the relationship between population dynamics, health, and the environment, and the role that elites play in harming the environment, environmental regulatory agency dynamics.

Today in sociology, two approaches to sociology of the environment battle it out in Contemporary academic writing: the realist approach and the constructionist approach. These are different approaches to what sociology does. Does sociology talk about how humans relate to the environment and the social factors that influence that? Or is it mainly about how humans perceive their relationship to the environment—a sociology of perspectives on the environment?

Check your progress-2
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

2. Define-Environmental Sociology?

…………………………………………………………………………
…………………………………………………………………..........................
....

4.5 TRENDS IN ENVIRONMENTAL SOCIOLOGY

As the foregoing illustrates, environmental sociology not only emerged in response to societal attention to environmental problems but has focused much of its energy on understanding these problems, especially their causes, impacts, and solutions. The field has proved to be more than a passing fad, becoming well institutionalized and also

increasingly internationalized. But in the process, fundamental assumptions that once served to unify the field—agreement over the reality of environmental degradation; diagnoses of such degradation as inherent to modern, industrialized societies; and the sense that mainstream sociology was largely blind to the significance of environmental matters—have become matters of debate (Buttel 1996, 1997).

The emergence of environmental problems provided the raison d' etre for environmental sociology, and the seriousness of such problems was seldom challenged. While environmental sociologists from the outset paid attention to ways in which claims about environmental conditions are socially constructed and become the subject of societal conflict (e.g., Albrecht 1975), such efforts seldom questioned the objective existence of environmental problems. In recent years, however, environmental sociology has felt the effects of the larger discipline's turn toward more cultural and interpretative orientations. A growing number of scholars, particularly in Europe, have not only highlighted the contested nature of claims about environmental problems but—in the postmodern tradition—concluded that there is no reason for privileging the claims of any parties to these debates, including those of environmental scientists as well as activists (Macnaghten and Urry 1998).

Such work has led to the emergence of a strong constructivist/interpretative orientation in environmental sociology that challenges the objectivist/realist perspective that has traditionally been dominant. Whereas the realist orientation assumes that the environment is a biophysical entity existing independent of humans, thereby providing the setting for study of human-environment interactions as the core of environmental sociology, the constructivist orientation leads its adherents to adopt an agnostic view of such interactions, preferring instead to examine knowledge claims—and the social forces they reflect— about these interactions (Macnaghten and Urry 1998). These competing perspectives can be readily seen in sociological work on global environmental change (GEC), where those in the realist camp have sought to complement natural-science research by examining, for example, societal processes leading to tropical deforestation and greenhouse gas emissions (noted previously), while constructivists have highlighted the uncertainties in scientific evidence for GEC and the social, political, and historical forces that have made GEC a central topic of scientific and policy-making interest (see Rosa and Dietz 1998). These differing orientations have led to debate among environmental sociologists, with realists pointing to shortcomings of the constructivist approach (Dickens 1996; Murphy 1997) and constructivists demonstrating the utility of their perspective (Hannigan 1995). Fortunately promising syntheses of constructivist and realist perspectives are beginning to emerge (Rosa 1998).

Another source of debate is the inevitability of continued environmental degradation, particularly on the part of advanced, industrialized nations. Whereas environmental sociologists have traditionally seen the drive toward capital accumulation inherent in such societies as making environmental degradation inevitable (as epitomized by Schnaiberg's ”treadmill of production” argument), European scholars have increasingly suggested that this may not be the case. Obvious successes in environmental amelioration within advanced European nations have led them to build upon economic models of ”industrial ecology,” which suggest that modernization of industrial processes can permit production with ever-decreasing levels of material input and pollution output, heralding a new era of ”ecological modernization” (Spaargaren and Mol 1992).

This perspective not only adopts a more sanguine image of the future of industrialized societies but, as Buttel (1996, 1997) notes, involves a shift in focus for environmental sociology: from a preoccupation with the origins of environmental degradation to efforts to explain the institutionalization of environmental amelioration (via technological innovation, policy incentives, pressures from citizens' groups, etc.). While representing an important complement to traditional perspectives in the field and building on larger sociological debates about the future of ”modernity,” ecological modernization is vulnerable to criticism. First, its development in northern Europe leads to concerns that ecological modernization is not applicable to less wealthy and technologically disadvantaged nations. Second, although nations such as the Netherlands have made considerable advances in protecting their own environments, their import of natural resources and export of pollution creates a large ”ecological footprint” well beyond their borders (Wackernagel and Rees 1996). Finally, even if continual progress is made in creating cleaner, more efficient production processes, these gains may be offset by continued economic growth and consumption and consequent increased demand for materials and energy (Bunker 1996).

The trends toward adoption of more constructivist/interpretative frameworks and models of ecological modernization are related to a third trend in environmental sociology—the ongoing reassessment of its relationship to the larger discipline. As noted earlier, the emergence of environmental sociology was marked by criticism of mainstream sociology's neglect of the ecosystem-dependence of modern, industrialized societies and consequent inattention to the challenge posed by environmental problems. This critical orientation led many environmental sociologists to look to other disciplines (such as ecology and environmental science) for guidance and probably contributed to a somewhat insular perspective vis-a-vis mainstream sociology.

But in the 1990s environmental problems, particularly global-level threats like climate change, have caught the attention of growing numbers of eminent sociologists, such as Giddens (1990), who have recognized that such problems cannot be ignored in analyses of the future course of industrial societies. Greater interaction between environmental and mainstream sociology has resulted, and the penetration of currently fashionable perspectives, such as cultural/interpretative frameworks and theories of the nature of late modernity into environmental sociology has followed—as exemplified by the popularity of the constructivist and ecological modernization perspectives. This is resulting in considerable debate and self-reflection among environmental sociologists, something that a maturing field can afford. Hopefully, environmental sociology will emerge with renewed relevance to the larger discipline of sociology as well as continued relevance to societal efforts to ensure an ecologically sustainable future for humankind.Following the development of these core notions of environmental sociology in the late 1970s and early 1980s, environmental sociology came to be strongly influenced by trends in environmental mobilization and in sociology at large. The first major influence was the explosion of attention to global warming and global environmental change from 1988 onward. Dunlap and Catton (1994) have demonstrated that public attention to global change facilitated growth in environmental sociology. Further, and perhaps most significant, dissemination of scientific information about global change served to shore up the confidence and resolve of many environmental sociologists that their theories can and should give priority to the material-ecological substratum of social structure and social life (see especially Dunlap and Catton 1994).

A second, but contradictory shift in environmental sociology over the past decade or so, derives from the larger discipline's "cultural turn" and the diminished stature of structural and materialist sociologies. The demise (ff Eastern European and Soviet state socialism, the growing influence of conservative ideologies, and the diminished appeal of Marxism and socialism have contributed to the decreased persuasiveness of some of the more materialist components of sociology such as neo-Marxism and political economy. At the same time, the excitement generated by cultural studies, constructivism, feminism, postmodernism, semiotics, and so on in academia at large has spilled over into sociology. This has led to rapid growth of cultural sociology, growing influence of microsociological perspectives, and a reduced stature of structural theories'.

One consequence of the cultural turn of the larger discipline is its growing receptivity to seeing environmentalism and related phenomena as being of social significance. Thus, on one hand, one sees that notables of the discipline, such as Giddens (1994) and Beck (1992, 1995), are increasingly placing yery strong emphasis on environmental postures and beliefs. Relatedly, cultural-environmental sociologists and sociologies have made major inroads into environmental sociology in recent years. Dickens

(1992), Greider and Gafkovich (1994), McNaughten and Urry (1995), Brule (1995), and Yearley (1991) are examples of the "cultural invasion" of environmental sociology during the early 1990s. Environmental sociology is now frequently undertaken through discourses in which notions such as modernity, postmodernity, risk society, and ecological modernization figure prominently (e.g., Mol and Spaargaren 1993; Spaargaren and Mol 1992). Equally significant has been the drift of sociologists of science, and their notions of the social construction of scientific knowledge, into the environmental sociology arena as interest has grown in researching the environmental sciences and the connections of environmental knowledge production to environmental politics and the environmental movement (Taylor and Buttel 1992; Wynne 1994; Yearley 1991).

The trends of the past decade have thus been uneven or mixed as far as environmental sociology is concerned. On one hand, the legitimacy for studying environmentally related social phenomena has never been greater within sociology. At the same time, the postures that have essentially defined the core of environmental sociology fdr nearly two decadesmaterialism, structuralism, and realism have declined in persuasiveness in the discipline. Most important for present purposes, these contradictory trends have led to major polemics within environmental sociology. Dunlap and Catton (1994) and Murphy (1994), for example, are prominent pieces of recent literature in which the cultural-constructivist invasion of environmental sociology has been strongly rebuked. Each has argued that cultural-environmental sociology is essentially incompatible with a sociology that is able to recognize the material and biophysical substructure of nation-states and global society.

For these reasons environmental sociology over the past half decade or so has become more specialized and, to some degree, balkanized. Also, because some of the most influential theories are essentially metatheories, and do not readily lend themselves to test and falsification, there has been some trend to embracing more middle range theories (e.g., Freudenburg and Gramling 1994a, 1994b). Other scholars, particularly those whose interests lie in resource extraction processes such as agriculture, mining, and timber, have found themselves more at home with theoretical views that come without presuppositions as to the singularity of environmental quality and degradation (see, e.g., Bunker 1992; Freudenburg et al. 1995).

Thus, environmental sociology in the 1990s has a dual character. On one hand, it remains strongly influenced by several strands of realist-materialist scholarship (many of which have some direct or indirect roots in rural sociology) that place major emphasis on revealing the material-ecological substructures of modern societies. At the same time, environmental sociology is now a less consensual and more contested area of scholarship than it was a decade ago. In large part this has been due to the cultural turn of environmental sociology and the challenge that

cultural-environmental sociology has presented to the materialist core of the subdiscipline.

While recognizing that environmental sociology faces a major challenge owing to strife over the role that social constructionism and cultural sociology should play, I would argue that over the long term the current period will prove to have been a creative and productive one. In my view, the field is now characterized by several major dualisms and debates, a number of which will be briefly discussed below. In each case, however, there are promising avenues for synthesis that can be seized and exploited. The intense debates that now crop up in the literature and, more commonly, take place in annual meeting hallways and classrooms are providing the raw material for advance in the field.

Emerging opportunities for synthesis within environmental sociology

Environmental sociology in the mid-1990s, though more successful than ever as a subdiscipline of sociology, has made these gains even as it has moved to the precipice of dissension and disarray. Partisanship in the service of ecological realism vs. social constructivism and the debate over whether Marxism is intrinsically "exemptionalist" and unecological are among the major focal points of debate. These debates as currently undertaken in which there is less focus on the specific issues at stake than on the ostensible superiority or inferiority of one or another theoretical systems or "paradigms" are not likely to be fruitful. Typically, there is little to choose between the core arguments of each. For example, the notion that there is a clear objective material reality to ozone depletion and atmospheric pollution is no more or no less true than the notion that humans' interactions with the environment are social, symbolically mediated, and relational (see especially the argument of Freudenburg et al. [1995] about the need to transcend the "nature/society divide" and to see physical and social factors as "conjointly constituted.").

I would argue, however, that more progress can be made if some of these debates are disaggregated into more specific arenas or topics. In this section of the paper I will outline what I see as among the most important lines of debate. For each I will suggest some emergent or plausible lines of synthesis or resolution.

What are the principal phenomena to be explained?

The subject matter of environmental sociology is, in a sense, straight-forward, consisting of social aspects of environmental problems and environmental issues. This notion, however, obscures the fact that there are two general categories of environmentally related phenomena that need to be accounted for by environmental-sociological theories. One category consists of "ordinary" social practices and phenomena that have environmental dimensions or implications, although they remain invisible or unrecognized. Humans tend to engage in production, in consumption of goods and services, and in institutional behaviors with essentially no

recognition or awareness of the resource intensities or ecosystem impacts that are involved. I refer to these practices as being "substructurally-environmental" ones.

The second major class of environmental phenomena consists of behaviors or institutional patterns that are self-consciously environmental or environmentally relevant. These intentionally environmental practices are social patterns or behaviors in which actors are subjectively conscious that they are engaging in environmentally relevant activities, or else are social relations in which at least some actors see the practices as being environmentally related. Examples include environmental mobilization, participation in an environmental movement organization (or engaging in resistance to an environmental group or agency), environmental conflict and politics, environmental regulatory processes, adherence to the "new environmental paradigm," and participation in a recycling program.

To a significant degree existing work in environmental sociology has tended to privilege one or the other category of environmental practices. Macrostructural theories, for example, have tended to emphasize substructurally-environmental social relations, while theories of environmental activism and politics have tended to focus almost exclusively on intentional environmental phenomena. I would argue that a strengthened environmental sociology must take into account both classes of environmentally-relevant phenomena, and be rooted in a more detailed conceptualization of the relations among substructurally-environmental and intentionally-environmental phenomena.

There has been some progress on this count. For example, what has made the work of scholars such as Dunlap and Catton, Schnaiberg, and Murphy so influential is that each has strived to treat both categories of environmental phenomena. But much of this literature has tended to conceptualize the fundamental relation between the two types of phenomena as being essentially a progressive rationalization and environmental consciousness-raising process; it is argued or assumed that, over time, the elaboration of environmental-scientific understanding of the natural world provides environmental movement organizations and, ultimately, citizens and policymakers with the information required to recognize the ecological embeddedness of social institutions. Thus, social practices are seen to shift from being substructurally-environmental to being intentionally-environmental.

However, the notion that scientific understanding of the natural world will tend to be a core building block of environmental consciousness and reform must confront contradictory processes. As Murphy (1994) acknowledges, and Schnaiberg and Gould (1994) stress, the growth of scientific knowledge of the natural world has had a myriad of positive and negative environmental impacts and, if anything, the historical balance has tended to be negative as far as environmental quality is concerned.

While natural science has had a good number of negative environmental impacts, modern environmentalism has increasingly become the paradigmatic example of the "scientization" of social protest and reform. Environmental activists have been at the forefront of recognizing that anchoring social movement claims and strategies in scientific knowledge is an effective strategy in the highly rationalized social structure and political economy of the late 20th century (see Yearley 1991). Yet, the rooting of movement claims in scientific knowledge increases their vulnerability to "deconstruction" through contradictory scientific evidence. Further, some significant quarters of environmentalism (e.g., many persons within the sustainable agriculture movement) are suspicious about, if not outright rejecting of, experimental natural science of any kind (on account of reductionism and other biases); these groups therefore struggle to enhance the role of local or indigenous knowledges in providing solutions to environmental problems. Thus, the complexity of the relations between science and environmentalism suggests the importance of developing a more detailed understanding of the dialectical relations between substructurally-environmental and intentionally-environmental practices.

There are several promising areas of research for exploring the interrelations among substructural and intentional environmental phenomena. One example is research on how social behaviors undergo shifts from one class of phenomena to another. For instance, environmental mobilization is, in a sense, a joint process of redefining otherwise "ordinary" phenomena (e.g., heating one's home in the winter, driving an automobile, purchasing fast-food hamburgers made from beef produced from pastures in former tropical rainforests) into intentionally-environmental phenomena, and of appealing to citizens to join collectively in efforts to influence such behaviors in the interest of environmental improvement. It should also be stressed that because social movement organizations focus on particular environmentally-related behaviors and phenomena does not necessarily mean that these are the most important or fundamental ones from an ecological-scientific perspective. Likewise, among the major tactics of groups that resist environmental reforms are actions serving to obscure or downplay the environmental relevance of phenomena or behaviors, and thus to "de-environmentalize" (or render "ordinary") these phenomena and behaviors.

The political-dialectical relations among the two classes of environmentally-relevant practices can also be explored through research on the social bases of environmentalism and environmental activism. Environmental-sociological treatments of environmentalism have arguably tended to de-emphasize both the complexity of environmentalism and the obstacles to mobilization. Environmental mobilization is typically portrayed as a more or less direct response to environmental degradation, threats of environmental degradation, and growth of environmental knowledge. Extensions of this line of argument suggest that societies are increasingly being restructured into "environmental classes": an

environmentally privileged class that has comfortable environments, benefits from environmental destruction, and tends to resist environmental reform, -on one hand, and an environmentally exploited class that suffers from low quality environments, pays for the costs of environmental degradation, and has an interest in environmental improvement, on the other. Environmental mobilization and conflict are conceptualized to flow from this "environmental class structure" (Murphy 1994).

The environmental class structure argument is attractive in some respects, particularly because it helps to explain resistance to environmental reforms. At the same time, these notions should be used cautiously, since they may lead to an "overly-ecologized" view of social reality a view that major social conflicts are essentially struggles over environmental resources, and that environmental activism is largely or simply a response to environmental problems. The environmental class structure notion may thus lead to downplaying other bases of environmentalism and environmental activism. For example, environmentalism arguably has some more purely "social" antecedents. Environmentalism is, in part, a source of personal identity, as has been stressed in elements of the new social movements tradition (Beck 1995). Likewise, environmentalism has arguably grown in stature as a new form or modality of resistance to dominant institutions; in the wake of the declining role of labor parties, trade unions, and other traditional institutions of left politics, environmental criticisms of policies and practices may be an effective or legitimate mode of expressing resistance.

At the same time, environmentalism tends to encounter significant obstacles to effective collective action. Environmentalism has no "natural constituency "that is, no particular social group that undergirds its base of support (as, for example, women comprise with respect to feminism, and minority groups do with regard to the civil rights movement). In environmental struggles, if environmentalists succeed they will tend not to be significantly better off materially than they would have been otherwise, and the major beneficiaries may well be future generations. Perhaps most importantly, while academic social and environmental scientists more often than not tend to see contemporary anti-environmental movements (e.g., the "wise use" and "property rights" movements) as temporary and aberrational phenomena, or as mere fronts for the anti-environmental agendas of certain multinational corporations, these movements are likely to have considerable staying power. The staying power of anti-environmental movements is not only due to the fact that environmental reforms involve costs and provoke resistance among "environmentally privileged classes," to borrow Murphy's (1994) concept. In addition, anti-environmental groups are often quite adept at responding to deep-seated grievances of disenfranchised (and "environmentally exploited") social groups more effectively than environmentalists do. It is of particular relevance to rural" sociologists that these movements are disproportionately focused on nonmetropolitan resource issues. In sum, the tenuousness of the base of support for environmentalism suggests why the

movement's access to the media, its ability to broker coalitions, and its choices of ideologies and appeals are so critical. Put somewhat differently, the argument of Freudenburg et al. (1995) about the need to transcend the "nature/society divide" and to see physical and social factors as "conjointly constituted" can be usefully extended to environmental mobilization as well.

What are the "prime movers" and causal factors?

There has been a long tendency within environmental sociology to gauge the seriousness or centrality of an approach to theory or research on the grounds of whether or not biophysical variables are incorporated as explanatory factors. The status of biophysical variables as explanatory factors lies at the heart of Dunlap and Catton's (1979) dichotomization of scholarship into bonafide environmental sociology, on one hand, and mere sociology of environmental issues, on the other. Genuine environmental sociology is seen to be that which rejects exclusive social causality and includes biophysical antecedents. The sociology of environmental issues is said by Dunlap and Catton to be a type of inquiry that explores environmentally related questions, but does so only by employing "social" explanatory variables; this style of research could be said to be indistinguishable from human exemptionalist or ordinary sociology."

I would offer two interrelated observations on this convention. First, following Dickens (1992), it should be noted that while the injunction to incorporate biophysical variables as causal factors makes intuitive sense at a metatheorerical level, it has proven to be very difficult to bring this proposition to bear at a more straightforward theoretical and prepositional level. Further, there is much work to be done in specifying the array of mechanisms through which social and biophysical forces interact, and in being able to specify propositions about the conditions under which particular mechanisms come into play. For example, we can observe that biophysical factors or forces will represent limits or bounds within which certain social structures or behaviors are possible. Biophysical factors or influences may also play the role of "switchman" (the imagery originally developed by Max Weber to depict the role of religion in shaping the course of capitalism), as has been stressed by Murphy (1994) in his recent effort to develop a neo-Weberian environmental sociology. Or the social and biophysical may be so closely and profoundly intertwined, that it would be misleading or artificial to disaggregate them. Taking the mechanism of social-environmental interactions to be an empirical question rather than a metatheoretical injunction is a potentially promising way to build scholarship that can transcend divisions based on biophysical causality.

What is the conceptualization of the environment?

It was noted earlier that the most influential theoretical perspectives in North American environmental sociology have tended to reflect a relatively singular conception of the environment. That is, "the

environment" even if it is seen to be multidimensional and a highly complex system is nonetheless seen ultimately as having some upper bound of (long-term, sustainable) human carrying capacity, as being essentially finite, and as having an underlying "unity" (Ophuls, 1977). While a particular region can exceed its carrying capacity by appropriating raw materials and ecosystem services from elsewhere (including "ghost acreage" over time [Catton 1980]), at a higher level of analysis, the human community and global society cannot escape the carrying capacity limits of the biosphere. Thus, this singular conception of the environment essentially presupposes a macro (national or global) level of analysis. And the notion of the singularity of the environment has been reinforced in recent years as a result of the widespread attention given to global environmental change and global warming. Global environmental change and global warming carry the implication that there exists an underlying global biospheric and atmospheric system, the degradation of which will have consequences for all peoples on the earth.

Such singular conceptions of the environment, however, may be problematic in their application to concrete empirical research. This is particularly so when that research is subnational in scope or focuses on ecological systems that are spatially diverse or unevenly affected by human activities.'" To take an agricultural example, we may agree that there is validity to the notion that there are some definite global limits to the size of the human population that can be supplied with food. Even so, empirical inquiry into the ecological constraints on and consequences of agriculture at a subnational level will not find this notion of global carrying capacity to be a source of useful hypotheses about the local ecology of agriculture and food.

These singular vs. plural or regionally-variegated conceptions of the environment obviously both contain an element of truth. Neither warrants being exclusively privileged in theory or research. The conception employed will need to be shaped by the type of resource or biological system of concern. Even scholars who are interested in environmental beliefs and orientations will need to bear in mind that the conception of the environment cannot be established a priori. For example, it is apparent that environmental concern grew during the time of movement mobilization around global environmental change (Dunlap and Catton, 1994), and thus reflected concern that growing degradation on a global scale would adversely affect succeeding generations. But it is arguably the case as well that for environmental beliefs to be enduring they need to be anchored, at least in part, in the concrete experiential realities and immediately tangible concerns of actors. That is, public environmental consciousness has historically grown in tandem with major movement mobilization episodes in which intergenerational, global conceptions of the environment (the population bomb, limits to growth, global warming and global environmental change) have predominated. In each case, however, public environmental consciousness waned, probably at least in part because it is

difficult to sustain public concern about environmental problems that lie decades into the future and cannot be directly experienced.

What is the basic tendency of modernity/social change in terms of environmental quality and integrity?

It was noted earlier that the major theoretical traditions in environmental sociology have tended to see the basic dynamics of modern industrial-capitalist societies as involving a very strong tendency toward environmental degradation. Indeed, one of the hallmarks of environmental sociology has been the strong case that its practitioners have been able to make that conventional sociology's concepts and reasoning cannot explain environmental crisis, and have little to say about the long-term future of human societies in a world of ultimate biophysical limits and ecological scarcity. This posture, despite its obvious utility in understanding the limits of mainstream sociological theory, has its liabilities as well. Theoretical systems that stress the potency and immutability of the forces leading to environmental degradation have difficulty in explaining the conditions under which environmental improvement is possible, and when the way out of the "iron cage" of environmental threat is discussed (as Murphy, 1994, employs Weber's well-known aphorism), these treatments often prove to be voluntaristic, Utopian, and poorly connected to the explanatory thrust employed to account for degradation.

It is possible, however, to find some middle ground between structural inevitability and voluntaristic optimism regarding our environmental future. One of the most significant attempts to do so has been the "ecological modernization" school of environmental sociological thought in Northern Europe. Spaargaren and Mol (1992), for example, have noted that while "modernity" has clearly been accompanied by environmental degradation, one of the concomitants of modernity has been the development of environmental knowledges and social pressures that create a basis for deflecting the course of modernity, in the direction of ecological modernization. Ecological modernization is basically the extension of the practices of modern rationalism to the business enterprise and state organization in ways that lead to adaptations and restructurings that reduce resource consumption and environmental degradation. Thus, while industrial modernization has tended to be in opposition to environmental quality, environmental components and dimensions are being progressively superimposed on the processes of rational calculation. While ecological modernization may err on the side of optimism, it nonetheless represents a positive response to the need of environmental sociology to give greater attention to the social bases of environmental improvement.

Check your progress-3
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.
3. State the trends in Environmental Sociology.
………………………………………………………………………
………………………………………………………………………………
………………………………………………………………………………

4.6 LET US SUM UP

In this unit, you have learnt about the concept, meaning and definition of environmental sociology, more recently, a course on environment and society should form a part of sociology curriculum at the post graduate and under graduate levels. It could include the following themes among others: the changing human nature relationship in history and the role of science and technology, perspectives on environment/ ecology and society in sociology and anthropology including the recent contributions of social science theorists on the nature and causes of environmental degradation in modern society, environmental critique of development, gender and environment and environmental politics/ movements. With specific reference to India, emphasis could be laid on the nature and impact of environmental degradation in colonial and post-colonial contexts, traditional system of resource management, depletion of resources and its effects on local communities, environmental struggles/ conflicts, recent experiments at resource management by the local communities/groups, and social and environmental impact of development projects.

4.7 UNIT- END- EXERCISES

1. Define – Environmental Sociology
2. Discuss the concept of environmental sociology. What does it mean and what are its attributes?
3. Describe the emergence of environmental sociology.
4. Write a short note on trends in Environmental Sociology

4.8 ANSWER TO CHECK YOUR PROGRESS

1. **Existential dualism**
   The duality of the human condition rests with cultural uniqueness and evolutionary traits. From one perspective, humans are embedded in the ecosphere and coevolved alongside other species. Humans share the same basic ecological dependencies as other inhabitants of nature. From the

other perspective, humans are distinguished from other species because of their innovative capacities, distinct cultures and varied institutions. Human creations have the power to independently manipulate, destroy, and transcend the limits of the natural environment (Buttel and Humphrey, 2002: p.47).

Societal-environmental dialectic

In 1975, the highly influential work of Allan Schnaiberg transfigured environmental sociology, proposing a societal-environmental dialectic. This conflictual concept has overwhelming political salience.

Treadmill of production

In 1980, Schnaiberg developed a conflict theory on human-environment interaction. The theory is that capitalism is driven by higher profitability and thereby must continue to grow and attract investments to survive in a competitive market. This identifies the imperative for continued economic growth levels that, once achieved, accelerate the need for future growth.

2. The technical definition of environmental sociology is the sociological study of how humans interact with the various aspects of the environment. In other words; how people treat the various aspects of the environment such as pollution, conservation and recycling. This type of study is one that is vital when it comes to helping find better ways for both nature and mankind to interact, propagate and thrive.
3. The first major influence was the explosion of attention to global warming and global environmental change from 1988 onward. Dunlap and Catton (1994) have demonstrated that public attention to global change facilitated growth in environmental sociology. Further, and perhaps most significant, dissemination of scientific information about global change served to shore up the confidence and resolve of many environmental sociologists that their theories can and should give priority to the material-ecological substratum of social structure and social life (see especially Dunlap and Catton 1994).

4.10 SUGGESTED READINGS

1. Bertrand, Alvin Lee, ed. *Rural sociology: an analysis of contemporary rural life*. McGraw-Hill, 1958.
2. Gillette, John Morris. *Constructive rural sociology*. Sturgis & Walton Company, 1915.
3. Mukherjee, Ramkrishna 1979. Sociology of Indian Sociology. Allied Publishers, Bombay.
4. Singh, Yogendra. 1979. “On the History of Sociology in India” in Mohini Mullick (ed.) Social Enquiry: Goals and Approaches. Manohar, Delhi.

5. Srinivas, M.N. and Panini 1986. "The Development of Sociology and Social Anthropology in India" in T.K. Oommen & Partha N. Mukherji (eds) Indian Sociology Reflections of Introspections, Popular Prakashan, Bombay. Emergence of Sociology in India.
6. https://study.com/academy/lesson/what-is-ecology-definition-lesson-quiz.html

UNIT- V

THE RISE, DECLINE AND RESURGENCE

Structure

5.11 INTRODUCTION

It has been observed that contemporary forms of environmental degradation present one of the most, if not the most, complex and catastrophic dilemmas of modernity (Folsblatt 1996: Preface). There is a general agreement that the economic expansion of a century and half has had alarming consequences for the global environment. Depletion of ozone layer, air pollution, loss of forests and bio-diversity, extinction of plant and animal species loss of marine life, soil and water pollution have occurred at an alarming rate.

Especially in post war years, release of toxic matters into the environment, worldwide expansion of nuclear energy, acid rains, new chemical pesticides, non biodegradable plastics and other harmful

Chemicals have come to pose a threat to life itself. In the recent decades, however we have witnessed the growth of environmental movements/conflicts, of environmental politics which may play an important role in checking the deterioration of our environment at the local and global levels.

The seriousness of the situation has led the scholars to predict that the 21st century will be characterized by a massively endangered natural environment if the present trends of ecological devastation continue. Further it is predicted that this aspect will become increasingly dominant in all fields- politics, foreign affairs, development policy, education, technology and research.

In this context two important issues emerge: the causes and consequences of environmental degradation in modern societies, and the role environmental politics can play to curb environmental degradation. Scholars have pointed to the limitations of the theoretical legacy of classical theory of Marx, Weber and Durkheim for examining the issues.

Weber's work shows the least engagement with the natural world. Even Marx and Durkheim, Goldblatt argues, who saw the relation between human societies and the natural world as central to historical change, did not pay much attention to the impact of economic and demographic processes on ecosystems. In fact, classical social theory was concerned more with how pre-modern societies had been constrained by their natural environments than with how industry in modern society led to environmental degradation.

In recent times, however, environmental concerns, both the origins and nature of environmental deterioration and the emergence of environment centered politics have been articulated in sociological writings.

As noted earlier, environmental sociology was just emerging at the time of the 1973–1974 energy crisis, so it is not surprising that identifying real as well as potential social impacts of energy and other natural resources was emphasized in this early period. While diverse impacts—from regional migration to consumer lifestyles—were investigated, heavy emphasis was placed on investigating the "equity" impacts of both energy shortages and the policies designed to ameliorate them (Rosa, Machlis, and Keating 1988). A general finding was that both the problems and policies often had regressive impacts, with the lower socioeconomic strata bearing a disproportionate cost due to rising energy costs (Schnaiberg 1975).

5.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Acquires knowledge about the rise, decline and resurgence of environmental sociology
- ✓ Understand the 21st century paradigm of environmental sociology

5.3 THE RISE OF ENVIRONMENTAL SOCIOLOGY

Environmental sociology, as scientific and academic production, emerged along with the social protest movements that arose in the early 1960ís and the evidence of the emergency situation caused by the degradation of natural resources and industrial development. The birth of the environmental movement in the 1960ís surprised sociologists, who, at that time, did not have a theoretical model or tradition of empirical research to guide their understanding of the relation between society and nature.

The pioneers of classical sociology, Durkheim, Marx and Weber had tangentially touched upon the question; beyond this, only isolated works appeared occasionally in the area of rural sociology, without promoting a substantial accumulation of knowledge that would have permitted the creation of a theoretical field.

Hannigan (1997) believes there are two explanations for the fact that sociologists marginalized the environmental question in their theoretical work. One of these refers to the weaknesses inherent in geographical and biological determinism and its conservative vision in understanding change and social conflict; the other alludes to the prevalent thinking that, in the middle of the XXth. century, emphasized the literature of the sociology of modernization. The belief in progress and in human ability to discover the causes and solutions for all problems would be responsible for the entrance of countries to modernity.

What is now identified as ìenvironmental concernî was seen as backward and an obstacle to development, to progress. Certainly, there were critics of the development paradigm, the Marxist sociologists; but, even so, they tended to see the environmental problem as a detour from the more crucial questions of humanism.

Giuliani (1998) points out that sociology was born marked by the thinking that makes society independent from nature, a concept seen as a conquest of modernity. Buttel (1992) points out the ambiguous relationship of sociology, in its developmental stage, with the natural sciences. If, on one side, sociological thinking was influenced by concepts coming from the natural sciences, on the other, the real need to legitimate the social sciences demanded a reaction against the simplicity of explanations surrounding biological and geographic determinism, as was seen earlier.

In this context, although in a differentiated form and principally since the 1960ís, groups of sociologists began to give importance to the environmental problem and perceive its relevance and range, which contributed to its inclusion in the agenda of governments, international organizations, social movements and business sectors around the world. It became evident that the environmental question was not just one more passing fad, nor a dramatization by militants or radical scientists, such as the so-called radical ecologists or political ecologists who initiated work in the area in the 1960ís (FERREIRA, 1992).

Environmental sociology assumes a significant position in studying the divergence and conflict about nature (understood here, in its broadest sense, as both the natural and constructed) and the causes and extent of environmental problems among the diverse actors involved (BUTTEL, 1987; REDCLIFT & WOODGATE, 1996; HANNINGAN, 1997; CATTON & DUNLAP, 1998).

5.4 DECLINE OF ENVIRONMENTAL SOCIOLOGY

There are various reasons why a new scholarly field appears on the academic horizon. Sometimes this reflects the expanding possibilities bursting forth from a cutting edge methodology or theoretical breakthrough. For example, Crick and Watson's unraveling of the double helix structure of DNA was the catalyst that sparked the growth of cell biology. At other times, a new specialization represents the merger of two previously existing scientific specialities. Finally, a new field can arise out of the intellectual and political ferment generated by movements for social reform and change. This probably best describes the case of environmental sociology.

As we have seen, each of the three widely acknowledged 'founders' of the discipline of sociology – Durkheim, Weber and Marx – addressed some aspect of nature and society, but this was not really definitive to their work. If environmental interest was to be found anywhere in North America, it was within the area of rural sociology, where there was a body of empirical research on natural resources. These enquiries took two forms: the study of natural resource dependent communities and research on the burgeoning use of public parkland for recreational purposes. Alas, by the late 1960s, many of these contributions had been overlooked or totally forgotten.

There is general agreement that the first explicit use of 'environmental sociology' was by Samuel Klausner in his 1971 book On Man in His Environment (page 4). Dunlap (2002b: 11– 12) remembers that he first came across the term in Klausner's book several years later 'when the term was just starting to be used'. Throughout the 1960s, Klausner, a sociologist and clinical psychologist, was engaged in a series of studies of human behaviour under stress. In 1967, he received a small grant ($7,000) from a think tank, Resources for the Future, to study 'social–psychological aspects of environmental research'. Three years later, he edited a special issue of the Annals of the American Academy of Political and Social Science on 'Society and Its Physical Environment'.

By this time, sociological interest in environmental matters had been re-ignited, primarily by the rising popularity of environmentalism and the environmental movement. A major catalyst for this had been the publication a decade before of Silent Spring (1962), Rachel Carson's bestselling expose of ecosystem damage due to agricultural pesticide use. Then in the early 1970s, the widespread attention accorded the apocalyptic predictions contained in The Limits of Growth (Meadows et al. 1972), combined with the 'energy crisis' in the United States, deepened this

environmental concern among academics. In addition, it broadened the scope of sociological interest in environmental matters to include issues related to resource scarcities and energy use. One sociologist who was particularly swayed by this was William Catton. Upon his return from New Zealand to the University of Washington in 1972, Catton expanded his earlier research interest in national parks and wilderness visitors to a more theoretical concern with overpopulation and declining fossil fuels. This coalesced with the publication in 1980 of the influential book Overshoot: The Ecological Basis of Revolutionary Social Change.

Environmental sociology has also been established since the early 1990s in Japan and Korea. One of the first environmental researchers in Japan was Nobuko Iijima who wrote her Master’s thesis on the impact of Minimata disease on the local community. In 1992, she helped found the Japanese Association for Environmental Sociology (JAES) and served as its first president. By 1999, the JAES had over 450 members and its own publication, the Journal of Environmental Sociology (Kankyo Shakaigaku Kenkyu).

In Korea, environmental sociology began to be taught from the early 1990s. Following a 1993 international conference held under the title ‘Environment and Development’, the Research Group for Environmental Sociology was established in 1995. This led to the founding of the Korean Association for Environmental Sociology in June 2000. In October 2001, at the Kyoto Environmental Sociology Conference, a research network, the Asian Pacific Environmental Connection was founded with the brief of solving societal and environmental problems in the Asia–Pacific region.

5.5 FACTORS AFFECTING ENVIRONMENT

The major factors of the environmental degradation are modern urbanization, industrialization, over-population growth, deforestation etc. Environmental pollution refers to the degradation of quality and quantity of natural resources. The human exercises are the fundamental reasons of environmental degradation. These have prompted condition changes that have turned out to be hurtful to every single living being. The smoke radiated by the vehicles and processing plants expands the measure of toxic gases noticeable all around. The waste items, smoke radiated by vehicles and ventures are the fundamental driver of contamination. Spontaneous urbanization and industrialization have caused water, air and sound contamination. Urbanization and industrialization help to expand contamination of the wellsprings of water. So also, the smoke discharged by vehicles and ventures like Chlorofluorocarbon, nitrogen oxide, carbon monoxide and other clean particles dirty air. Neediness still remains an issue at the base of a few ecological issues.

5.5.1 Social Factors

5.5.5.11 Population

The rapid population growth and economic development in country are degrading the environment through the uncontrolled growth of urbanization and industrialization, expansion and intensification of agriculture and the destruction of natural habitats. One of the significant reasons for environmental degradation in India could be ascribed to quick development of population which is antagonistically influencing the natural resources and condition. The developing population and the ecological weakening face the test of maintained improvement without natural harm. The presence or the nonattendance of ideal characteristic assets can encourage or hinder the procedure of economical development. Population is an important source of development, yet it is a major source of environmental degradation when it exceeds the thresh hold limits of the support systems. Unless the connection between the multiplying population and the existence emotionally supportive network can be settled, improvement programs, howsoever, imaginative are not prone to yield wanted outcomes. Population impacts on the environment primarily through the use of natural resources and production of wastes and is associated with environmental stresses like loss of biodiversity, air and water pollution and increased pressure on arable land. The increase in population has been due to the improvement in health conditions and control of diseases. The density of population has gone up from 117 in 1951 to 312 in 2001 and further to 382 persons in 2011 per square kilometer. A few push and draw factors are ventured to be agent towards trouble out relocation from rural to urban regions. This may be because of the declining asset accessibility per capita and contracting financial open doors in rural territories and better monetary openings, wellbeing and instructive offices and so on in urban regions giving chances to more elevated amount of human capital improvement could be the basic variables for country out movement. India supports 17 per cent of the world population on just 2.4 per cent of world land area.

5.5.5.12 Poverty

Poverty is said to be both cause and effect of environmental degradation. The round connection amongst poverty and environment is a to a great degree complex marvel. Imbalance may cultivate un sustainability in light of the fact that poor people, who depend on normal assets more than the rich, drain characteristic assets quicker as they have no genuine prospects of accessing different kinds of assets. As the 21st century starts, developing number of individuals and rising levels of utilization per capita are draining regular assets and corrupting the earth. The poverty-environmental damage nexus in India must be seen in the context of population growth as well. The pressures on the environment intensify every day as the population grows. The fast increment of human numbers joins with urgent poverty and rising levels of utilization are draining natural resources on which the vocation of present and future ages depends. Poverty is amongst the consequences of population growth and its

life style play major role in depleting the environment either its fuel demands for cooking or for earning livelihood for their survival.

5.5.5.13 Urbanization

Urbanization in India started to quicken after freedom because of the nation's reception of a blended economy which offered ascend to the advancement of the private area. Urbanization is occurring at a quicker rate in India. Population living in urban territories in India, as per 1901 statistics, was 15.14%. This tally expanded to 28.53% as indicated by 2001 enumeration, and intersection 30% according to 2011 evaluation, remaining at 35.116%. As indicated by a review by UN State of the World Population report in 2007, by 2030, 40.76% of nation's population is required to dwell in urban zones. According to World Bank, India, alongside China, Indonesia, Nigeria, and the United States, will lead the world's urban population surge by 2050. Lack of opportunities for gainful employment in villages and the ecological stresses is leading to an ever increasing movement of poor families to towns. Such fast and spontaneous extension of urban areas has brought about debasement of urban condition. It has extended the hole amongst request and supply of infrastructural administrations, for example, vitality, lodging, transport, correspondence, instruction, water supply and sewerage and recreational pleasantries, along these lines exhausting the valuable ecological asset base of the urban areas.

5.5.2 Economic Factors

Environmental degradation, to a large scale, is the result of market failure, namely the non-existent or poorly functioning markets for environmental goods and services. In this unique situation, environmental degradation is a specific instance of utilization or generation externalities reflected by uniqueness amongst private and social costs/benefits. Absence of very much characterized property rights might be one reason for such market disappointment. Then again, showcase contortions made by value controls and endowments may irritate the accomplishment of environmental goals.

The level and pattern of economic development also affected the nature of environmental problems. India’s development objectives have consistently emphasized the promotion of policies and programmes for economic growth and social welfare. The production innovation received by the vast majority of the ventures has set an overwhelming burden on condition particularly through concentrated asset and vitality use, as is clear in common asset consumption (petroleum derivative, minerals, timber),water, air and land sullying, well being risks and debasement of characteristic eco-frameworks. With high extent petroleum derivative as the fundamental wellspring of modern vitality and real air contaminating enterprises, for example, iron and steel, composts and bond developing, mechanical sources have added to a generally high offer in air pollution.

Large quantities of industrial and hazardous wastes brought about by expansion of chemical based industry have compounded the wastes management problem with serious environmental health implications. Transport exercises have a wide assortment of consequences for the earth, for example, air pollution, noise from street activity and oil slicks from marine delivery. Transport foundation in India has extended impressively

as far as system and administrations. In this way, street transport represents a noteworthy offer of air contamination stack in urban areas, for example, Delhi. Port and harbor extends mostly affect on touchy waterfront eco frameworks. Their development influences hydrology, surface water quality, fisheries, coral reefs and mangroves to shifting degrees.

5.5.3 Institutional Factors

The Ministry of Environment & Forests (MOEF) in the Government is responsible for protection, conservation and development of environment. The Ministry works in close coordinated effort with different Ministries, State Governments, Pollution Control Boards and various logical and specialized establishments ,colleges, nonGovernmental associations and so on.

Environment (Protection) Act, 1986 is the key legislation governing environment management. Other important legislations in the area include the Forest (Conservation) Act, 1980and the Wildlife (Protection) Act, 1972. The shortcoming of the current framework lies in the implementation abilities of natural foundations, both at the middle and the state. There is no effective coordination amongst various Ministries/Institutions regarding integration of environmental concerns at the inception/planning stage of the project. Current policies are also fragmented across several Government agencies with differing policy mandates. Absence of prepared work force and far reaching database postpone numerous activities.

The greater part of the State Government organizations are moderately little experiencing deficiency of specialized staff and assets.

Although overall quality of Environmental Impact Assessment (EIA) studies and the effective implementation of the EIA process have improved over the years, institutional strengthening measures such a straining of key professionals and staffing with proper technical persons are needed to make the EIA procedure a more effective instrument for environment protection and sustainable development.

5.5.4 Land Degradation

Land degradation is any change or disturbance to the land perceived to be undesirable. Land degradation can be caused by both manmade and natural reasons such as floods and forest fires. It is estimated that up to 40 per cent of the world’s agricultural land is seriously degraded. The main causes of the land degradation includes climate change, land clearance and deforestation, depletion of soil nutrients through poor farming practices, overgrazing and over grafting. In India, water erosion is the most prominent reason of land degradation. The growing trends of population and consequent demand for food, energy, and housing have considerably altered land-use practices and severely degraded India's environment. The growing population put immense pressure on land intensification at cost of forests and grazing lands because the demand of food could not increase substantially to population. Thus, horizontal extension of land has fewer scopes and relies mostly on vertical improvement that is supported by technical development in the field of agriculture i.e. HYV seeds, Fertilizers, Pesticides, Herbicides, and

agricultural implements. All these practices are causing degradation and depletion of environment.

5.5.5 Air Pollution

Air pollution in India is a serious issue with the major sources being fuel wood and biomass burning, fuel adulteration, vehicle emission and traffic congestion. Air pollution is also the main cause of the Asian brown cloud, which is causing the monsoon to be delayed. India is the world's largest consumer of fuel wood, agricultural waste and biomass for energy purposes. Traditional fuel (fuel wood, crop residue and dung cake) dominates domestic energy use in rural India and accounts for about 90 per cent of the total. In urban areas, this traditional fuel constitutes about 24 per cent of the total. Fuel wood, agri-waste and biomass cake burning releases over 165 million tones of combustion products into India's indoor and outdoor air every year. These biomass-based household stoves in India are also a leading source of greenhouse emissions contributing to climate change.

On per capita basis, India is a small emitter of carbon dioxide greenhouse. In 2009, IEA estimates that it emitted about 5.14 tons of gas per person, in comparison to the United States' 17 tons per person, and a world average of 5.3 tons per person. However, India was the third largest emitter of total carbon dioxide in 2009 at 5.165 Gt per year, after China (6.9 Gt per year) and the United States (5.2 Gt per year). With 17 percent of world population, India contributed some 5 percent of human-sourced carbon dioxide emission; compared to China's 24 percent share.

5.5.6 Lack of environmental awareness

Lack of awareness with respect of environment is the final factor for environmental degradation.

Check your progress-1

Notes: a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

5.1 Explain the rise and decline and of Environmental Sociology

2. What are the factors responsible for environmental decline?

…………………………………………………………………………

…………………………………………………………………...........................

....

5.6 RESURGENCE OF ENVIRONMENTAL SOCIOLOGY

In contrast to the larger society, mainstream sociology in the 1970s was almost oblivious to the significance of environmental problems. This blindness stemmed from a long period of neglect of environmental matters, stimulated by the societal context in which sociology developed as well as its unique disciplinary traditions. The Durkheimian emphasis on explaining social phenomena only in terms of other "social facts," plus an aversion to earlier excesses of biological and geographical "determinisms," had led sociologists to ignore the biophysical world. To legitimize sociology as a discipline, it was important to move away from explanations of, for example, racial and cultural differences in terms of biological and geographical factors, respectively. Yet in the process of developing distinctively social explanations for societal phenomena, our discipline replaced older determinisms with sociocultural determinism. For example, as recently as the late 1970s, sociologists of agriculture argued that it was inappropriate to include factors such as soil type and rainfall in explanations of soil conservation adoption or farm energy use because they were not social variables.

These disciplinary traditions were strengthened by sociology's emergence during an era of unprecedented growth and prosperity, which made limits to resource abundance and technological progress unimaginable, and increased urbanization, which reduced direct contact with the natural environment. With modern, industrialized societies appearing to be increasingly disembedded from the biophysical world, sociology came to assume that the exceptional features of Homo sapiens—language, technology, science, and culture more generally—made these societies "exempt" from the constraints of nature and thus reluctant to acknowledge the societal relevance of ecological limits. Given sociology's neglect of the biophysical environment—and tendency to equate "the environment" with the social context of the phenomenon being studied— it is not surprising that efforts to establish environmental sociology as an area of inquiry included a critique of the larger discipline's blindness to environmental matters. Dunlap and Catton's (1979a) effort to define and codify the field of environmental sociology was accompanied by an explication and critique of the "human exemptionalism paradigm" (HEP) on which contemporary sociology was premised. While not denying that human beings are obviously an exceptional species, these analysts argued that humans' special skills and capabilities nonetheless fail to exempt the human species from the constraints of the biophysical environment.

Consequently, Catton and Dunlap (1978, 1980) suggested that the HEP should be replaced by a more ecologically sound perspective, a "new ecological paradigm" (NEP), that acknowledges the ecosystem dependence of human societies. The call for mainstream sociology's dominant paradigm to be replaced with a more ecologically sound one proved to be a rather controversial feature of environmental sociology. While the exemption list underpinning of mainstream sociology has been increasingly recognized (Dunlap 2002b), the call for adoption of an

ecological paradigm has been criticized for allegedly deflecting efforts to apply classical and mainstream theoretical perspectives in environmental sociology. Nonetheless, environmental sociologists are producing rapidly expanding bodies of both empirical literature on the relationships between societal and environmental variables that clearly violates Durkheim's antireductionism taboo and theoretical literature representing efforts to develop more ecologically sound theories that are not premised on the assumption of human exemptionalism.

Both of these trends reflect the declining credibility of exemptionalist thinking within sociology (Dunlap 2002b). Sociological interest in the impacts of energy and other resource scarcities accelerated the emergence of environmental sociology as a distinct area of inquiry by heightening awareness that "the environment" was more than just another social problem, and that environmental change can indeed have societal consequences as well as the obvious fact that human activities can affect the environment. Studies of the impacts of energy shortages on society facilitated a transition from the early "sociology of environmental issues"—involving the application of standard sociological perspectives for analyzing societal responses to environmental issues—to a distinctive "environmental sociology" focused explicitly on societal-environmental relations.

5.7 21st CENTURY PARADIGM OF ENVIRONMENTAL SOCIOLOGY

5.7.1 The Crises of the Planetary Environment and the Emergence of the Sustainability Paradigm.

There is a substantial scientific consensus that the major global environmental threats are the consequences of human actions: overconsumption of precious resources (such as water, forests, fossil fuels), destruction of ecosystem services, unsustainable land practices, the unabated release of toxic chemicals, and emissions driving climate disruption. Also recognized are the steps most scientists believe essential for addressing these threats: reducing greenhouse gases, establishing biosphere reserves, protecting endangered populations and species and other critical resources, regulating chemical releases, limiting human population growth, and regulating excessive consumption patterns, especially among the rich.

Despite these widely held scientific views, the policy decisions needed to deal with these threats have been disappointing—arguably not up to the level necessitated by the challenge. Meanwhile, the accumulation of greenhouse gases (GHGs) continues unabated (and humanity still lacks a clear agreement or strategy for enforceable reductions), species extinction rates accelerate to thousands of times "background" extinction rates, and more and more toxic compounds accumulate from pole to pole.

Global environmental change touches upon every facet of human existence—health, diet, leisure, quality of life, every day practices; production, consumption, education, research, politics, and societal values. However grandiloquent it sounds, no human goods—life, love, liberty, the freedom to pursue a meaningful existence—can be enjoyed without the flourishing of life on earth.

Modernization—whichever its current forms and however it is brought about—appears to make human life increasingly unsustainable on this planet. One of the issues—and challenges raised by contemporary research—concerns what possible forms of modernization are sustainable and how they might be accomplished.

A societal paradigm shift is taking place—whether the transformation is fast enough or comprehensive enough to save the planet remains to be seen. Such a paradigm consists of a socially shared cognitive-normative framework—in values, norms, beliefs, and strategies—and typically entails new principles of social organization (see related work on public policy paradigms and their shifts [6]). It need not be coherent or complete.

The paradigm concept is of course most often associated with Thomas Kuhn's work, and it continues to be widely used in a manner closer to Kuhn's original usage also, see Capra, among others. How well suited the concept is to describe and analyze conceptual developments in the natural or social sciences has remained a subject of controversy, but that is a separate matter and not a debate to be taken up here. My claim is that a paradigm concept is very suitable to the analysis of societal, institutional, and public policy developments which are shaped and governed by societal agents (scientists included) sharing and developing cognitive-normative frameworks.

5.7.2 Paradigm Shifts and Societal Transformations: Meta-Power and Social Structuring

How do major societal transformations come about, for instance in the case of systems of governance and regulation, which are key components of social paradigms? This section identifies several of the mechanisms of change All of them are observable in initiatives to reduce some of the impacts of "the human footprint" on local, regional, and global environments. One mechanism, on which we will focus because of its centrality to and extensiveness in the sustainability revolution, is what we refer to as "organic transformation" (in a certain sense, from bottom up, but this is very misleading since many collective agents involved are very large and should not be understood as "grassroots").

5.7.3 Mechanisms of Social Order Formation and Transformation

Social systems are characterized by their institutional arrangements, populations of differentiated agents, organized forms of power, diversity of knowledge, and conflict/struggle within and over the systems [16,17]. Of particular interest in sociological and social science research are shifts from one system regime to another, for instance from state or public governance of goods to private (e.g., privatization of electricity or gas in the EU), or from a loosely regulated market regime (such as food in the EU) to a tightly regulated markets treated as a "commons" (for example, the security and public health aspects of food in the EU after the "mad cow" and other crises) [6].

There are several major processes whereby a societal regime may be formed or reformed [6,8]. Key factors concern not only power (and agents exercising power) and their values and interests but also the formulation and development of a paradigm concerning the design and functioning of societal and sectorial governance. The paradigm entails a type of "knowledge", although the knowledge need not be necessarily correct or contribute to effective performance of the governance regimes.

Conditions of power, knowledge (paradigms), and conflict are distinguished below in a consideration of the transition/transformation of social orders (with multiple governance systems).

5.7.3.1 Dominant Power (Autocracy) Combined with a Shift in the Agent's Cognitive-Normative Framework

A hegemonic agent (or alliance) adopts or develops (as a result of a learning or persuasive process) a new governance paradigm, using its power to establish and maintain the paradigm. This may operate locally, regionally, or globally (e.g., the USA at Bretton Woods after World War II is a global example; a more local instance would be business firm headed by a powerful executive (see below)).

The hegemonic agent is able to launch a new paradigm by virtue of its position (although, typically, within some constraints).

5.7.3.2 Power Shifts

A shift in power takes place, and a new group or leadership assumes power bearing a different paradigm than the previous regime. The shift of power may occur through a democratic process (e.g., elections or a decision of a parliamentary body), a negotiation between elites, coup d'état, or revolution.

The pattern in a transformation with elite replacement is typically one of more or less open struggle for, and ultimately a shift in, domination relationships. A group, organization, or movement with a new paradigm of social order takes political power.

5.7.3.3 A New Order Is Established Through Multi-Agent Negotiation (Possibly with Mediation or Some Arbitration in Relation to Conflicting Parties)

The negotiation may be a rather simple bilateral negotiation, or it may be a complex multi-agent negotiation process. Coleman and others [6] have demonstrated that, for instance, corporatist governance arrangements lend themselves to the cumulative, negotiated, problem-solving trajectory in bringing about policy paradigm changes, for instance in Canadian agricultural policy and programs. Norwegian and Swedish economic and labor-market policies and programs set up through neo-corporatist tri-partite bargaining (business, labor, and government) functioned in similar ways, capable of establishing new regimes (reforms) but ones which were accomplished through multi-lateral negotiation and compromise rather than dramatic shifts in power.

5.7.3.4 Paradigm Shift Through Diffusion and Emulation ("Organic" Transformation)

The first three types of paradigm transformation are characterized typically by a few identifiable, more or less organized agents, whether with few or many participants, and substantial scope of power. The transformations, even if drawn out over considerable periods of time, have a decisive character. Through particular collective actions, a new order is "legislated" and constructed, provided there are sufficient resources and a feasible design.

A contrasting modality is observable when a new type of social system is established through processes of diffusion and emulation (mimetic function) under decentralized conditions in which a multiplicity of agents make autonomous, yet similar decisions to shift to a new paradigm. On an aggregate level, there is an emergent development—the process results in transformations of prevailing governance paradigms with different agents, goals, methods, and technologies.

Such organic types of transformation entail multiple actors initiating change at local, meso-, and macro-levels, without obvious coordination or direction, although the actors are typically embedded in communication and other types of networks. The participating actors—in the purest case—have no intention to bring about the global transformation that they produce together. And the processes of transformation are diffused in time and space. It is difficult, if not impossible, to define a moment of change or transition. There are spatial and temporal continuities, at the same time that in a larger perspective, transformation emerges accomplished through the "spontaneous", uncoordinated actions of many social agents at different levels. Although an organic revolution is not directed or determined at a global or macro-level, macro-institutional conditions and polices (forming a context) are likely to affect the course of the transformation, and may provide a certain directedness for many

"spontaneous processes".

5.7.4 Organic Transformations: The Case of Sustainability

This section leads off with a brief reference to the "industrial revolution" in its early organic phases. This provides a backdrop for characterizing the emerging sustainability revolution.

5.7.4.1 Early Industrial Revolution (Toward the End of the Eighteenth Century)

This revolution entailed many small and medium initiatives in the emergence and transformation of technologies, institutional arrangements, social relations, and values such as those relating to the formation of factories, built environments, and entire industries. Such transformations could occur without any single agent or group of agents planning or even negotiating the overall pattern.

5.7.4.2 The Emerging Sustainability Revolution

Today we are witnessing the initial stages of a new societal revolution comparable in scale and significance to the industrial revolution. Tens of millions of people are considering and adopting new conceptions, goals, techniques and technologies, and practices relating to a wide spectrum of environmental concerns and developments. The ongoing paradigm development—a gradual shift from the economistic, industrialization paradigm to one or more forms of a sustainability paradigm entail the establishment of new ways of thinking, acting, organizing, and regulating (in part, the establishment of a new cognitive-normative discursive framework and context). Sustainability ideas, norms, and values permeate an ever-increasing part of modern life and have a significant impact on everyday thinking and practices in substantial parts of the world. This is occurring not only in developed countries but also in developing ones such as China, India, and Brazil.

Today we are witnessing the early stages of a new societal revolution comparable in scale and import to the industrial revolution. This "sustainability revolution"—sustainalization—implies a new type of society—or family of societies. It is being forged, piece by piece ("organically", so to speak). Masses of "sustainability" designs, plans, and initiatives at different levels have been developed as people try to forge new orders (local, meso-, and –macro) as occurred in the case of industrialization. Another way of thinking about this transformation is that a "green" or sustainalization world is emerging—just as an industrial world perspective emerged in and through the industrializing process. In the "green revolution", one finds:

The increasing stress on green values: that is, articulation and development of new values, norms, standards, in a word, the "green" normative perspective.

An ever-growing generalized judgment that "green" patterns of action and developments are "good." And patterns and developments which are "non-green" or "anti-green" (use of high gas consumption vehicles, overuse or wastage of water or other critical resources, etc.) are "bad".

New practices, for instance new accounting conceptions and standards such as "triple bottom line".

The growing role of "green thinking, conceptions, standards and practices" in many areas of social life; there are also increasing narratives about green ideas, values, and standards, which circulate in wider and wider circles.

The growing role of "green" entrepreneurs (for whatever reasons, they initiate projects—beliefs in a green future, profitability, pressures of competition, or combinations of such motivators).

Green governance; new regulatory mechanisms: distinguishing "good" (green) versus "bad" (non-green) innovations and developments.

Institutionalization of green standards and considerations in decision and policymaking settings in government agencies, corporations, and associations.

Check your progress-2

Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

3. Describe the resurgence of Environmental Sociology
4. Explain the paradigm shift for sustainability of Environment?

…………………………………………………………………………
…………………………………………………………………………
…………………………………………………………………………

5.8 LET US SUM UP

In this unit, you have learnt about the concept, meaning and definition of ecology, nature and scope of ecology and importance of studying ecology. Thus, the introduction unit of ecology would have brought you closer to know the concept, nature and scope of ecology and usage in your educational career. This content might play a very important role in your service.

5.9 UNIT- END- EXERCISES

1. Explain the rise, decline and resurgence of environmental sociology.
2. Write down the factors affecting environment.
3. Explain-Paradigm shift towards sustainable environment: need of hour.

5.10 ANSWER TO CHECK YOUR PROGRESS

1. The rise

   Environmental sociology, as scientific and academic production, emerged along with the social protest movements that arose in the early 1960ís and the evidence of the emergency situation caused by the degradation of natural resources and industrial development. The birth of the environmental movement in the 1960ís surprised sociologists, who, at that time, did not have a theoretical model or tradition of empirical research to guide their understanding of the relation between society and nature.

   The Decline

   As we have seen, each of the three widely acknowledged 'founders' of the discipline of sociology – Durkheim, Weber and Marx – addressed some aspect of nature and society, but this was not really definitive to their work. If environmental interest was to be found anywhere in North America, it was within the area of rural sociology, where there was a body of empirical research on natural resources. These enquiries took two forms: the study of natural resource dependent communities and research on the burgeoning use of public parkland for recreational purposes. Alas, by the late 1960s, many of these contributions had been overlooked or totally forgotten.
2. Social Factors

   Population

   Poverty

   Urbanization

   Economic Factors

   Institutional Factors

   Land Degradation

   Air Pollution

   Lack of environmental awareness
3. In contrast to the larger society, mainstream sociology in the 1970s was almost oblivious to the significance of environmental problems. This blindness stemmed from a long period of neglect of environmental matters, stimulated by the societal context in which sociology developed as well as its unique disciplinary traditions. The Durkheimian emphasis on

explaining social phenomena only in terms of other "social facts," plus an aversion to earlier excesses of biological and geographical "determinisms," had led sociologists to ignore the biophysical world. To legitimize sociology as a discipline, it was important to move away from explanations of, for example, racial and cultural differences in terms of biological and geographical factors, respectively. Yet in the process of developing distinctively social explanations for societal phenomena, our discipline replaced older determinisms with sociocultural determinism.

4. The Crises of the Planetary Environment and the Emergence of the Sustainability Paradigm.
   Paradigm Shifts and Societal Transformations: Meta-Power and Social Structuring
   Mechanisms of Social Order Formation and Transformation
   Dominant Power (Autocracy) Combined with a Shift in the Agent's Cognitive-Normative Framework
   Power Shifts
   A New Order Is Established Through Multi-Agent Negotiation (Possibly with Mediation or Some Arbitration in Relation to Conflicting Parties)
   Paradigm Shift Through Diffusion and Emulation ("Organic" Transformation)
   Organic Transformations: The Case of Sustainability
   Early Industrial Revolution (Toward the End of the Eighteenth Century)
   The Emerging Sustainability Revolution
   New practices, for instance new accounting conceptions and standards such as "triple bottom line".

5.11 SUGGESTED READINGS

1. Mukherjee, Ramkrishna 1979. Sociology of Indian Sociology. Allied Publishers, Bombay.
2. Singh, Yogendra. 1979. "On the History of Sociology in India" in Mohini Mullick (ed.) Social Enquiry: Goals and Approaches. Manohar, Delhi.
3. Srinivas, M.N. and Panini 1986. "The Development of Sociology and Social Anthropology in India" in T.K. Oommen & Partha N. Mukherji (eds) Indian Sociology Reflections of Introspections, Popular Prakashan, Bombay. Emergence of Sociology in India.
4. https://study.com/academy/lesson/what-is-ecology-definition-lesson-quiz.html

UNIT- VI

THEORETICAL PARAMETERS IN ENVIRONMENTAL SOCIOLOGY

Structure

6.1 INTRODUCTION

To the readers of Environmental Sociology, it needs no explanation that bringing nature into sociology is of vital importance. Interaction between humans and their natural environment and incorporation of natural science findings into social action are central to environmental sociology research. Since the emergence of environmental sociology in the 1970s, many scholars have engaged in debate over the 'sociology of nature', but the issue remains complex and controversial.

This complexity is partly due to multiple meanings of the concept of nature. Nature, in the context of environmental action, can refer to the object of natural science (i.e. material reality), nature as it is cherished and protected in nature protection (i.e. wild animals, plants and landscapes), nature as it is experienced and dealt with in everyday life (including sun and wind, pets and home plants) and nature as human bodies (e.g. exposed

to harmful impacts from pollution). Another reason as to why the debates are complex and controversial is the need for abstraction and the wide range of implications in any reasoning on this issue. In entering this arena, I will not be able to avoid this complexity, but I will try to specify meanings of nature where needed. It is also beyond the scope of this article to give an overview of all approaches to the 'sociology of nature' articulated in the literature thus far.

An overview of nature concepts evident in the field of environmental sociology, published in 2000, identified three main approaches to the integration of nature – in the sense of natural environment – in social theory (van Koppen 2000). First, in the resource approach that prevailed among pioneers of environmental sociology, nature was primarily considered a sustenance base for human society and defined in accordance with the natural sciences (e.g. Schnaiberg 1980; Pepper 1993; Dunlap 1993; Dickens 1996; Spaargaren and Mol 1992; Spaargaren 1997). Philosophically, this position was usually associated with realism. Second, realism was confronted by the social constructionist approach (also called environmental constructivism, see Lidskog 2001) which emerged in the 1980s and aimed to understand nature as a result of social processes, rather than a reality 'out there'. Constructivist studies aimed to reveal that what humans think of as 'nature' is at closer sight a product of social dynamics. This type of analysis was frequently applied to the 'facts of nature' unearthed in scientific experiments (e.g. Knorr-Cetina and Mulkay 1983; Latour 1993; Callon and Law 1989; Shapin and Schaffer 1985). However, it was also applied to representations of nature cherished in nature protection (e.g. Cronon 1995; van den Daele 1992; Hannigan 1995; Tester 1991).

These protection-oriented representations of (living) nature as a whole comprised of beings endowed with moral, aesthetic, and other values were identified as a third main approach. According to its advocates (e.g. Merchant 1980, 1992; Leiss 1972; Eckersley 1990, 1993; Evernden 1993; Shiva 1993), research and environmental action should aim at understanding and protecting these values. After Worster (1985), this approach was named Arcadian. The Arcadian approach was critical of the natural sciences; some proponents anticipating the emergence of a new 'holist' science that would transcend the 'reductionist' character of the present one. While diverging in their views on the values of nature and the roles of natural science, the resource approach and the Arcadian approach both conceptualized nature as something existing independently of human society, in contrast to the constructivist approach.

In the 15 years since, the resource approach has not lost terrain, but rather gained strength. One of the reasons for a stronger position of natural science was the emergence of global warming as central environmental problem, which brought scientific assessment and modelling of climate change centre stage in environmental policy and action. Arcadian expectations of a new, non-reductionist, science did not materialize to any substantial extent and, in spite of continuing criticism of the reductionist character of modern science, the rise of the concepts of biodiversity and

ecosystem services has strengthened the positions of biology and economics in nature protection arenas. Meanwhile, authors engaging in constructivist analyses of environmental issues have moved away from radically opposing realism in favour of more conciliatory stances and new conceptualizations – several of which are collected under what Pellizzoni calls the 'ontological turn' (Pellizzoni 2015).

So, in a way of speaking, realism, associated with a natural science-based resource approach of nature, has strengthened its position on the battlefield and a ceasefire is established between constructivists and realists. While this situation has helped to divert attention from the fruitless constructivist–realist feuds of the early 1990s, it has not solved the conceptual problems of dealing with nature in (environmental) sociology. These problems can be summarized in three interrelated questions.

How to deal with natural objects and processes that play a role in social dynamics? The need to take in biophysical objects and processes – in a wide variety of meanings, ranging from human bodies and animals to planet earth and processes of climate change – has been acknowledged by many sociologists. But how to do so remains unclear. Should we interpret them as a material stage for social actors to play on? As elements that co-produce social practices? As actors in their own right?

How to deal with natural science explanations of social phenomena? Much sociological literature speaks in a self-evident way about the social as the domain of social sciences, and nature as the domain of natural sciences. But separating the two is more and more precarious now that researchers in the domains of neuroscience and evolutionary biology investigate processes at the heart of social dynamics (e.g. Cerulo 2010) while sociology, at the same time, is becoming more interested in bodies and emotions (e.g. Weenink and Spaargaren 2016). What to do when natural science and social science explanations compete?

How to deal with sociology's own core concepts and theories? What are the consequences of the rise of material objects and natural science explanations for the status of key theoretical notions of sociology – norms, institutions, rationalities, discourses, etc. – notions that have scaffolded sociology as an independent social science discipline? Do they remain untouched? Should we interpret them more clearly in terms of context-dependent and group-bound representations and constructions? Or should we rather emphasize their grounding in real social facts?

6.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Understand the emerging theoretical parameters in environmental sociology
- ✓ Explain the importance of environmental sociology

6.3 EMERGING TEORETICAL PARAMETERS IN ENVIRONMENTAL SOCIOLOGY

6.3.1 Environmental Justice

Sociology's attention to people, communities, and the socio-economic ordering of resource distribution, especially in contrast to research in the natural sciences or economics, makes sociological research on climate change critical to protecting vulnerable populations, e.g., the poor, elderly, children, women, and communities of color. Environmental justice researchers have shown that efforts to rebuild communities and distribute resources in the wake of environmental disasters require that researchers pay attention to the power differentials shaping people's access to fair and just protection from these disasters. Environmental justice scholarship builds on existing research by documenting how social inequalities are structured and exacerbated by environmental disasters and economic development in both industrial and industrializing countries. Sociological research on the intersections of race, gender, and class offers a lens for analyzing environmental justice dimensions of global climate change. Weather-related disasters like Hurricane Katrina can serve as a laboratory for future sociological research on equitable and inequitable rebuilding and aid practices, and can ensure that research on vulnerable populations is included in decision-making processes and policy-setting agendas.

6.3.2 Human Health

The IPCC and the World Health Organization (WHO) have catalogued a wide-range of vulnerabilities and threats to human health from changing weather and climate patterns. Poorer populations in the U.S. and abroad who lack access to adequate health care systems are especially at risk for the spread of air and waterborne infectious diseases whose emergence, frequency, and location are projected to shift under different climate change scenarios. Natural science and public health researchers have begun to note variations in seasonal diseases, like the flu, and the geographic spread of malaria and diarrheal diseases resulting from ill-equipped sanitation services and a lack of access to clean, fresh water. Medical sociologists, WHO researchers, and the IPCC note an increasing likelihood of deaths related to malnutrition, heat waves, and the spread of infectious diseases to populations that lack natural immunity and adequate health care.

6.3.3 Security and Conflict

The effects of global climate change on water resources, agricultural production, weather, land use, and human health and social life have geopolitical implications. Sociological research on the shape and operation of the global economic and political system provides a strong foundation for launching studies of the implications of climate change on national and transnational mobilizations and conflicts associated with resource scarcity, resource allocation, and environmental decision making. Research on internal and international migration can be focused on the

demography of climate change and the phenomenon of "environmental refugees."

6.3.4 Social Demography and Population Research

Understanding the scale of the demographic dimensions and likely outcomes of global climate change is one of the most important and promising opportunities for sociologists to contribute to climate change research and policy. Demographic studies of migration, fertility patterns, and health outcomes are directly applicable to studying the impacts of climate change. Demographic research on the relationships among population trends, economic growth, and patterns of human consumption have important implications for understanding various climate change impacts and policy responses. A crucial area for sociological research is to map the demographic impact of global climate change on different populations, especially differences in race, class, gender, age, health status, region, and nation. Sociologically-based research findings can inform human development scenarios

6.3.5 Multi-Level and Global Governance

Sociologists have begun to study the possibilities of different governance arrangements to maximize the effectiveness of climate change countermeasures. The climate change problem is global, but can only be solved through integrated governance systems at multiple levels: local, regional, national, and global. Given the potential for any individual signatory to defect from world-wide emissions control agreements, the success of such global governance efforts will require relatively high voluntarism and willing assent. Effective climate change governance implies a historically unprecedented level of global cooperation.

6.3.6 Decision Making and Risk Assessment

The 2005 National Research Council report, "Decision Making for the Environment," notes that the behavioral and social sciences are "essential but often unappreciated knowledge bases for wise choices affecting environmental quality."30 The NRC recommended five areas for future climate change mitigation and adaptation research that fit well with the theoretical and empirical strengths of sociology: improving environmental decision making processes; institutions for environmental governance; including the environment in business decision-making; environmentally significant individual behavior; and decision-relevant science for evidence-based environmental policy. These research areas offer opportunities for sociologists working in the areas of decision making and risk assessment to shift their research to focus on questions associated with global climate change.

6.3.7 Cultures of Consumption

It is not only economics and politics that shape responses to mitigate or adapt to global climate change. It is also cultural and meaning systems. Sociological research on consumerism documents its intimate relationship to economic production and advertising, definitions of personal "taste" and "distinction," and styles of consumption integrated

into the global circulation of popular culture. Policies designed to change consumption as a mitigation or adaptation strategy for responding to global climate change must take into account not only politics and economics, but also the cultural and social realms of human life. Sociological research on these and other aspects of the consumption processes can identify institutional pathways and barriers to restructuring an eco-friendly economy.

6.3.8 Contributions to Advocacy and Action Research

An important issue facing sociologists conducting climate change research is whether their research will be useful to communities and policymakers seeking to mitigate or adapt to climate change, and whether such utility should be a high priority in identifying research questions and designing research programs.

6.3.9 Organizations and Networks

Organizational sociology's strategies for studying the internal structure and operation of organizations, interactions among organizations, organizational networks and sectors, and organizational evolution are all applicable to understanding the role of informal and formal organizations, economic and governmental organizations, and NGOs in climate policy formation, implementation, and enforcement.

6.3.10 Build capacity by increasing the number of researchers engaged in the sociological study of the environment by recruiting sociology colleagues and students to study global environmental and climate change.

This means environmental sociologists must reach out to other sub-specialties within sociology, collaborating with other scholars, mentoring junior colleagues, and recruiting and training graduate students to work in climate related topics, and increasing their involvement in university consortia that address climate change.

6.3.11 Increase the presence of sociologists in local, national, and international research and decision-making by clearly articulating the distinct contribution of sociological approaches, research questions, and contributions to climate change research.

6.3.12 Provide funding opportunities to develop and conduct research projects that investigate the human dimensions of global climate change broadly defined, including small grants to encourage new projects, new investigator awards, and funding to develop collaborations, convene workshops, and offer short courses in new techniques for studying the human dimensions of climate change.

6.3.13 Facilitate sociologists' access to climate change research and policy networks by fostering better internal networking among sociologists. This could include creating a glossary, directory, or database that identifies important organizations and lists sociologists currently involved in major climate change science networks and research consortia

Check your progress-1
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

6. What are the emerging theoretical parameters in environmental sociology?

………………………………………………………………………………
………………………………………………………………………………
………………………………………………………………………………

6.7 LET US SUM UP

In this unit, you have learnt about the emerging theoretical parameters in environmental sociology. This content might play a very important role in protecting your environment.

6.8 UNIT- END- EXERCISES

1. State the emerging theoretical parameters in environmental sociology of studying ecology.

6.9 ANSWER TO CHECK YOUR PROGRESS

6.

- ✓ Environmental Justice
- ✓ Human Health
- ✓ Security and Conflict
- ✓ Social Demography and Population Research
- ✓ Multi-Level and Global Governance
- ✓ Decision Making and Risk Assessment
- ✓ Cultures of Consumption
- ✓ Contributions to Advocacy and Action Research Organizations and Networks
- ✓ Build capacity by increasing the number of researchers engaged in the sociological study of the environment
- ✓ Increase the presence of sociologists
- ✓ Provide funding opportunities to develop and conduct research projects
- ✓ Facilitate sociologists' access to climate change research and policy networks

6.10 SUGGESTED READINGS

1. Sharan, AK (1999) Social Psychology. Commonwealth Publishers. New Delhi
2. Desai, A.R. 1959 Social Background of Indian Nationalism. Popular Prakashan, Bombay.
3. Dube, S.C. 1955. Indian Village. Cornell University Press: New York
4. Bertrand, Alvin Lee, ed. Rural sociology: an analysis of contemporary rural life. McGraw-Hill, 1958.
5. Gillette, John Morris. Constructive rural sociology. Sturgis & Walton Company, 1915.
6. Mukherjee, Ramkrishna 1979. Sociology of Indian Sociology. Allied Publishers, Bombay.
7. Singh, Yogendra. 1979. "On the History of Sociology in India" in Mohini Mullick (ed.) Social Enquiry: Goals and Approaches. Manohar, Delhi.
8. Srinivas, M.N. and Panini 1986. "The Development of Sociology and Social Anthropology in India" in T.K. Oommen & Partha N. Mukherji (eds) Indian Sociology Reflections of Introspections, Popular Prakashan, Bombay. Emergence of Sociology in India.
9. https://study.com/academy/lesson/what-is-ecology-definition-lesson-quiz.html
10. NSFC climate change workshop report

UNIT- VII

CONTRIBUTION OF ZAVESTOSKIS, DUNLAP AND CATTON ETC

Structure

7.1 INTRODUCTION

Sociological research on global climate change has its roots in environmental sociology—a specialty field that developed in reaction to increased social awareness of environmental problems in the 1970s. Environmental sociologists examine and theorize the complex and multi-faceted relationship between human beings and their natural environments, including the question: why do social systems tend to exceed their ecological carrying capacities? Beginning in its early days, environmental sociology focused on the social and political dynamics of the environmental movement, studying how people organized around, reacted to, and adapted to air and water pollution, the impacts of technology, controversies over land use, and questions of environmental justice. By the 1980s, environmental sociology expanded its field of inquiry beyond environmentalism as a social and political movement and began examining the underlying organizational, economic, cultural, and emotional factors that have shaped modern industrial society's relationship to the bio-physical world, in particular the implications for the environment of various models of economic development, political contestation, pre-existing structures of inequality, and questions of sustainability Environmental sociology has drawn theoretical insights from the broader discipline of sociology in a number of areas, including research on social movements, political sociology, organizational sociology, small group and large-scale decision making, micro and macro foundations of social inequality, community studies, network theory, population and migration research, and models of globalization.

Environmental sociologists have reached outside sociology's disciplinary boundaries to borrow and adapt theoretical models from population ecology, geography, and demography, among others. These different conceptual lenses have provided depth and breadth to a number of critical debates among environmental sociologists about the most important and promising theoretical and research questions and about the place of environmental sociology within the discipline of sociology and the social sciences.

In the four decades since its founding, environmental sociology has produced a substantive body of scholarship that highlights the motivations, behaviors, and organizing mechanisms underlying society's relationship with nature and the physical world. The field has provided important insights into comparative public opinion about the environment, diffusion of environmental institutions around the world, effect of values on individual environmental behavior, role of culture in shaping environmental exploitation and regulation, social interests driving consumerism and high resource usage production systems, capacity of societies to learn and practice sustainability, environmental effects of local and global systems of resource extraction, social dimensions of environmental impact assessment, interaction of population, technology, and affluence on the environment, tradeoffs between economic growth and environmental protection, mobilization and networking of environmental movements, unequal social and economic consequences of environmental policies in local communities, and environmental implications of economic and political arrangements that characterize international relations and define the relative places of peoples around the world.

Despite its foundational focus on the human-natural nexus, environmental sociologists have only recently turned their research attention to global climate change. There is, however, a great deal that sociologists in general, and environmental sociologists specifically, have learned that contributes to understanding the causes of global climate change, for example, which populations are most vulnerable and resilient to the impacts of climate change, and what is the role of competition among states in the global system to accelerating the drivers of global climate change.

7.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Understand the contributions of different sociologists to ecology and society

1.3 CONTRIBUTION OF SOCIALOGISTS

1.3.1 Zavestoskis

Dr. Zavestoski's research areas include environmental sociology, social movements, sociology of health and illness, and urban sustainability. He has published more than 40 articles and book chapters and co–edited Social Movements in Health (2005, Blackwell) and Contested Illnesses: Citizens, Science, and Health Social Movements (2012, UC Press).

Dr. Zavestoski's current work explores strategies to address both sustainability and public health through urban and transportation planning. This work has culminated in Incomplete Streets: Processes, Practices and Possibilities (2014, Routledge), co–edited with Julian Agyeman. Incomplete Streets problematizes the Complete Streets concept, a movement in urban planning and policy to design and engineer streets to enable safe access for all users—pedestrians, bicyclists, motorists and transit riders. Complete Streets policies are typically justified in a number of ways, including their ability to meet a city's sustainability and population health goals by making alternatives to the automobile viable. Incomplete Streets critically examines whether, or how, Complete Streets policies might undermine sustainability goals by exacerbating various forms of inequality.

Incomplete Streets is part of the Routledge series "Equity, Justice and the Sustainable City," of which Dr. Zavestoski is co–editor. The series is intended to address both the challenges and opportunities confronting the world's cities—whether old or emerging or part of the global south or north—in the face of the growing sustainability imperative. The series as a whole foregrounds equity and justice as being central to the transition toward sustainable cities.

Dr. Zavestoski's past work includes investigation of strategies that disease sufferers take to demonstrate that their conditions are caused by environmental contamination, and how citizens engage in the scientific process and policymaking in order to shape research and policy agendas. Initially focused on environmental health activism in the U.S., Dr. Zavestoski extended this work in 2006 during a Fulbright studying environmental health activism in India. This research resulted in multiple publications on the legacy of the 1984 Bhopal chemical disaster and the movement for justice that followed.

Dr. Zavestoski has also researched the use of Internet technology as a means of increasing public participation in environmental decision–making and the role of the self–concept in shaping environmental and anti–consumption attitudes.

7.3.2 Dunlap and catton

When William Catton and Riley Dunlap began publishing their groundbreaking work on paradigms in the late 1970s, sociologists had been grappling with fundamental questions about the discipline for at least two decades. According to Catton and Dunlap, however, significant blind spots

still remained, the most important falling in the shadow cast by strong anthropocentrism and a worldview that was decidedly nonecological. This anthropocentric bias also dominated the field of organizational studies until the mid-1990s. Both sociology and organizational studies benefited from scholarly analyses conducted by Catton and Dunlap (and others) that uncovered underlying paradigmatic assumptions and that proposed ecologically grounded alternatives. But both fields still tend to be limited by anthropocentrism and need more research aimed at developing theories and models centered on ecological processes and radical organizing. Revisiting Catton and Dunlap's paradigms framework is suggested as a valuable step for both sociologists and organizational studies scholars interested in addressing major gaps in their fields.

7.3.3 Ramachandra Guha

Well-known historian and writer Ramachandra Guha discusses the crisis in the environmental movement today, how environmentalists are always looking for impossible ideal solutions, and why development must place equal emphasis on ecology, social justice and economics. After all, he says, isn't democracy all about harmonising conflicting interests?

Historian Ramachandra Guha was professorial fellow at the Centre for Contemporary Studies, Nehru Memorial Museum and Library, New Delhi. He has taught at Yale University, the Indian Institute of Science and University of California at Berkeley, where he was the Indo-American Community Chair professor in 1997 and 1998. He is the author of an acclaimed study of the Chipko movement, The Unquiet Woods, and co-author of This Fissured land, An Ecological History of India and Ecology and Equity. He has also written a critically-acclaimed biography of Verrier Elwin titled Savaging the Civilised.

Professor Guha is also an authority on Indian cricket and has edited the Picador Book of Cricket. His work has been translated into several Indian and European languages. He is now a full-time author and columnist whose research focuses on environmental history (especially of India and South Asia) and social ecology.

Recently he has been in the news for critiquing Arundhati Roy's stand in her recent essays on the environment and development.

You have said that the environmental movement is in a crisis today. Why?

The problem with the environmental movement today is that the more creative marginal voices and protests have been pushed out. The media has been responsible for the fact that only radicals are heard. No one wants to listen to a logical, reasoned argument on anything like how to solve the water crisis in Kutch. The environmentalists have only themselves to blame for this. They only like to highlight this vocal and wholesale opposition to, for one, globalisation and markets.

But we cannot live without the market; we cannot live with no contact with the outside world. We have to learn to regulate and use (the market) for our best purposes. This kind of extreme position - no market, no globalisation, no government -- is all bad. You have to identify creative and responsive elements within the system and work with them. So these extreme positions that environmentalists take, which make them feel very good and righteous and get them into the papers, are not ultimately helpful.

There can never be a perfect solution to any global problem. There can only be less bad and more bad solutions. The problem with the environmentalists is that they want an ideal solution, which is not possible.

Thirty years ago, when no one cared about the environment, it was all right to be screaming and shouting. But 30 years down the line, I think much of this behaviour is irresponsible. I think the environmental movement is in a crisis now. I think a lot of new creative thinking needs to come in. The voices of the middle ground have to be heard much more.

This is where the environmentalists are often out of touch with what the ordinary citizen wants. The ordinary citizen wants better houses, better means of transportation, decent clothing, good food, and all this can only be provided through more efficient utilisation of resources. An ordinary citizen is a middle-of-the-road person. Ordinary citizens in a democracy want some kind of incremental solution. They don't want a totally pro-development policy or a pro-indigenous people or environment policy. They want opposing interests to be harmonised. Which is what democracy is all about... harmonising conflicting interests. And this is even more the case for rural citizens. Some of the more extreme activists decry the role of the market, the role of modernisation, but the ordinary villager will be happy to exchange their position for his.

There is a wonderful story that was told to me by a Dalit poet, a well-known Kannada poet called Devalur Mahadeva, about why Ambedkar wears a suit and in all his statues he is shown wearing a suit. This, he said, is because Dalits are not supposed to be wearing a suit. Why do people worship Ambedkar in a suit? When Gandhi wears a loincloth, people say, "What sacrifice!" If Ambedkar wore a loincloth they would say, "Aakhir woh to Dalit hai, aur kya pehenega (After all he is a Dalit, what else can he wear?)."

So you see, the ordinary villager wants a better life. Anyone who rides a cycle wants a motorcycle. Everyone yearns for a better life, which means more economic efficiency, better use of technology, entrepreneurship, the market -- all things that activists are so suspicious about and demonise.

But that doesn't mean you go the whole hog and say 'Consumerism Zindabad' and ignore the social and ecological factors.

So all three are important. Once you have this principle, then you can look for small solutions, but solutions that recognise that all three are important.

What role does industry have to play in development?

Industries today have contributed a lot of their money as well as efforts towards society. And this is a start -- they can move from education to health to ecology and so on -- to music, literature, art.

It doesn't help if extreme environmentalists demonise industry along with the government, the markets, the scientists. I think we have to work with progressive-minded industries, progressive-minded bureaucrats. And environmentalists often just see that as "the establishment". We cannot do without each of these, we cannot do without efficient and broadminded industries, we cannot do without publicly-oriented research. For example, the Sontheimer Association did well to take money from the Bank of Maharashtra. Many social groups don't do this. But why shouldn't the Bank of Maharashtra, which is a Maharashtrian bank, contribute towards attempts to conserve the folk culture of Maharashtra? Why shouldn't Infosys, which is a Bangalore-based company, be persuaded to improve the quality of life in Bangalore?

Unfortunately, you will never have heard Medha Patkar, whom I admire greatly, say anything good about an industry or a government official.

I praised Infosys in my debate about Arundhati Roy, not so much Infosys as the corporate sector in Bangalore. And immediately among the radical environmentalists I became suspect because I had said a good thing about some industries. You have to discriminate. You may have some good things going on within the government, within industry. But unless you identify those progressive and socially-conscious industries, and those honest and committed government officials, how can society ever solve its problems?

Arundhati Roy said software industries are responsible for the displacement of 40 million people. That was one of her typical remarks. There is no connection at all.
Firstly they use very little electricity. Other industries use much more. And for the first time, you have industries that are investing in primary education... giving back some money to society. You must applaud this instead of making nasty remarks about them.

What role should writers and other artists play in the environmental or other social movements?

There is no general prescription for who should participate in what movements. But whoever does so must do so with both sympathy for the movement and an understanding of the movement. Also, once anyone else gets involved in a movement, they should remain involved in a sustained way. There is no point in flitting from one cause to another.

This is even more so in the case of writers. Since writers have the advantage of being able to communicate and put their thoughts across more clearly, having been trained to do so, they are at an advantage. And along with this advantage should be the obligation to understand each cause fully before writing about it.

Do you really think it is possible to work out a process of development where social equity, ecological stability and economic efficiency are all given weightage?

For any development to take place, first of all we need the awareness that all three are important. First you need all three - ie economic efficiency, some kind of social equity and ecological stability - as ideals to work towards slowly.

Unfortunately what we did in the past was not recognise that all three are important. In the first years of India's development, from the '50s to the '90s, we felt social equity was the most important and economic efficiency was disregarded. After the '90s, economic efficiency has become most important, and social equity is disregarded. But in both cases, ecological stability has been disregarded.

The great contribution of the environmental movement has been to bring this issue to the front. Once you recognise that all three are important, then you can start looking at how it is practical to incorporate the three.

Because market-oriented economies don't see ecological issues as important, we must not commit the reverse mistake -- of not seeing economic issues as important. We have to understand that nature is a complex system and that you cannot use it in a careless way. You have to have a vision that incorporates all the three -- ecology, economics and society. You cannot have one global development plan. It cannot be done from the centre -- it has to be worked out locally.

Let us shift now to the subject of your recent research: forest laws. What factors led to the amendment in the forest laws in 1990, after they had remained practically unchanged for more than a century?

Pressures from both up and down -- grassroot pressure from below and voices that listen from the top. The whole complex of issues, starting with grassroot mobilisation, the international debate on deforestation and biodiversity, solid work by scholars and scientists, empirical research showing the consequences of promoting authoritarian forest laws combined with a sympathetic bureaucracy. The coming together of all these led to policies like the joint forest management (JFM) programme.

What is the World Bank's role in this development?

I have not really studied this, but I don't think it is very positive. The World Bank has this big problem -- they don't look for local solutions. For example, they are imposing JFM on Uttaranchal, which has its own Van Panchayat model, which don't depend on the forest department. So they are converting existing, well-functioning Van Panchayats, which have been functioning from the 1920s, into JFMs.

The World Bank thinks one model should be applied everywhere. The problem with the WB is not that it is evil or corrupt or something. Just that it has one universal solution. It suddenly decides that this is the way in which problems should be solved... poverty should be solved. Once upon a time it was large dams, now it is JFM. Regardless of whether it is Peru or Chile or Somalia or India, regardless of whether it is Uttar Pradesh or Karnataka, it wants to apply the same model. It seduces officials with foreign trips and so on, but by and large I don't think the World Bank is playing a very positive role. They have no understanding of the issue... they have very simple-minded solutions to all problems. One cannot expect Washington to understand what is the case in West Bengal or Maharashtra. So I think the World Bank should not be involved in this... not because it is evil, but because it is poorly informed. It is not really the appropriate agency to understand local issues.

Has thinking in the forest department changed over the years? Even recent reports of the Forest Survey of India blame the increase in population and the way of life of forest dwellers for the loss of forests.

The thinking has changed a little bit. Some young officials are genuinely concerned about what is happening. You do have this kind of report in the forest department because they need to find scapegoats.

Has the population explosion over the last 50 years meant that even if the villagers are given back use of the forests, it will be difficult to reverse the changes that have taken place?

I don't think so. Take the case of West Bengal. Some of the forests there were very degraded. A few years ago, they went back to joint management involving the villagers. Two things happened. Not

universally, but in some areas. One, people who had migrated to cities came back. Because they now had an income from the forests to depend on. The second, even more interesting, was that once the villagers were actively involved the sal forests grew so well that the elephants started coming back. Herds, which had not been to the area for decades, came back there. This of course created problems like crop-raiding, but this is an indication of how fast the forests grew back.

I don't think there is such a population pressure that one cannot manage the situation. The reports say that because bureaucrats have to save their skin and they can't say that they were wrong, they just say too many people, or too much livestock.

What is your opinion on the concept of reclaiming land for tribals?

That would be very important all over India. One of the problems that tribals are facing is that their land is not regularised and the government finds it very easy to throw them out if say something like minerals are found. In Orissa, parts of which were princely states, no proper surveys were done and no land given. The Orissa government also did not bother to regularise the land after independence. In a place called Kashipur, the tribals were cultivating land, considered it their own. A lot of bauxite was found, a Norwegian company came in, and the government just threw them out.

Tribals have not had proper land deeds and so on, and this must be changed. They want their right to land and this must be changed all over.

Do you believe that tribals are being brought into the mainstream against their wishes?

That is only partly true. They would of course like to retain control over their forest. They would like to retain pride in their culture. They would not like these sanctimonious missionaries who say don't dance, don't sing, don't drink. Of course they take pride in their culture. But they would like their children to be educated. They would also like to equip their children to participate on terms of equality with the world.

7.3.4 Patrick Giddens

Patrick Geddes was a Scottish biologist, known also for his innovative thinking in the fields of urban planning and education. He was responsible for introducing the concept of "region" to architecture and planning and is also known to have coined the term conurbation.

Geddes shared the belief with John Ruskin that social processes and spatial form are related. Therefore, by changing the spatial form it was possible to change the social structure as well. This was particularly

important in the late 19th and early 20th century when industrialization was dramatically altering the conditions of life.

Geddes demonstrated this theory through his work in Edinburgh's Old Town. Here, in this most dilapidated area, he used associations with prominent thinkers who lived there in the 18th and 19th century (like Adam Smith), to establish residential halls. The building in question is still part of the University of Edinburgh complex. Here he situated his famous Outlook Tower, a museum of local, regional, Scottish, and world history.
He collaborated with his son-in-law, architect Sir Frank Mears on projects in the Middle East. In 1919, Geddes was commissioned by the British Mandate to draw up a masterplan for Jerusalem. In 1925, he submitted a master plan for Tel Aviv. Tel Aviv is the only known city whose core is entirely built according to Geddes' plan.

7.3.5 Radhakamal Mukerjee

Radhakamal Mukerjee was born on 7th December in 1889 in a large Bengali Brahmin family at Berhampur (Murshidabad), a small country-town in Western Bengal. He spent the first sixteen years of his life in this town. His father was a lawyer and the leader of the bar. He was an accomplished scholar with a great interest in history.

Mukerjee had his early education in Berhampur. He went to the Krishinath College of Berhampur. He got an academic schol-arship in the leading educational institution in India – the Presidency College, Calcutta. He took his honours course in English and History in this college. Here, he came in contact with scholars such as H.M. Percival, M. Ghosh, brother of Aurobindo Ghosh, and the linguist Harinath De.

A brilliant student of Presidency College, Mukerjee read meticulously the works of Comte, Herbert Spencer, Lester Ward, Bagehot, Hobbhouse and Giddings. But, his interest in under-standing the social life ameliorating the conditions of the poorer segments of the society was the result of his contact with the masses during the Swadeshi days of 1905-6. His patriotism found expression in his educational work among the slum dwellers in Calcutta. “Only educational and social work among the masses could be silently … pursued without being nipped in the bud by political oppression”.

During this period of his life, Mukerjee launched himself into the area of adult education which remained his interest till the end. He started an Adult Evening School in 1906 in the slums of Mechaubazar in Calcutta. He also wrote simple texts for adult education.

The Renaissance, particularly the intellectual and political ferment, specially caused by the partition of Bengal by Lord Curzon, kindled in Radhakamal the flame of patriotism and the eagerness to do something for the suffering masses. His interest in economics and sociology in preference to history was a sequel to this.

In 1910, Mukerjee joined his alma mater in Berhampur as a teacher in economics. He stayed there for five years. It was the busiest period of his life. During this period, he wrote his early works in economic, such as the Foundations of Indian Economics. At this time, he also became the editor of the renowned Bengali monthly, Upasana.

During 1915, when there were persecutions by the British government, Mukerjee was once arrested for a day and all his adult schools were liquidated. The charges against him were that he was a 'terrorist' or had sympathy with terrorism under the disguise of adult education. He was released very soon by the efforts of his lawyer brother. He was offered a position in Lahore College in Punjab. He went there thus, nipping in bud any interest in politics.

He went back to the University of Calcutta where Asutosh Mookerji had established the Post Graduate Council of Arts and Science in 1917. He stayed there for five years and taught economics, sociology and political philosophy. He was awarded the Premchand Raychand Scholarship in 1915 and PhD degree in 1920 (Calcutta University) on his study of "Socio-Economic Change in the Indian Rural Community".

In 1921, he joined the University of Lucknow as Professor and Head of the Department of Economics and Sociology on the very day when the university started functioning. He introduced an integrated approach in economics, sociology and anthropology in both research and teaching in Lucknow University.

He taught economics and sociology in Lucknow University for nearly thirty years up to 1952. He was Economic Advisor of the Gwalior State Government from 1945 to 1947 and Vice-Chancellor of the Lucknow University from 1955 to 1957. In 1958, he became Director of the J.K. Institute of Sociology and Human Relation of the Lucknow University. Thus, he stayed at Lucknow until his death, with interludes at the universities of Patna, Calcutta and Delhi, from 1925 to 1940.

Mukerjee also visited the universities of Cambridge, Oxford, Cologne, Vienna, Harvard, Columbia, Chicago, Michigan and Wisconsin for delivering lectures in economics and sociology in 1937, 1946 and 1948. He was nominated Chairman, Economics and Statistics Commission of the FAO at Copenhagen in 1946, a member of the Indian delegation to consider proposals for World Food Council, Washington in 1947, and as a member of the Technical Committee of the ILO for recommending names of countries for seats on its governing body. He served as a member of various committees appointed by the Government of Uttar Pradesh and the Union Government.

Theoretical Formulation: According to Ramkrishna Mukherjee (1979), since human institu-tions form an indivisible unity of the individual, society and values, any consideration of social facts without their value component is unreal; instead, there should be a fusion of

’empirical’ and ‘norma-tive’ sociology, therefore, development of man is possible through commonality and cooperation in a free society, and not through contradiction and conflict.

Radhakamal Mukerjee’s vision of sociology, though rooted in the Indian tradition, was still universalistic. He saw the possibility of developing a general theory of sociology based on a social action theory. In the Indian case this theory would be derived from Indian philosophy and tradition.

Methodology: Beginning with the structural-functional approach to ascertain the interdependence between the economic sphere and the entire socio-historical-cultural order of Indian society, the ‘transdisciplinary’ approach was to be used for a comprehensive appraisal of social reality in the Indian world context. Mukerjee also suggested for the use of comparative methods in the study of social sciences in India. He said: “We must aim at the scientific study of the race and culture origins.”

Inspired by Seal to investigate reality in the specific context of India, by Geddes to unfold in its empirical details, and in the light of his basic training in economics, Mukerjee began his research career with field investigations and bibliographical research in economic sociology and human ecology. He sustained his interest in empirical field investigations and throughout his life encouraged his students in this respect.

However, in course of time, Mukerjee empiricism became multidimensional, centred around the conceptualization of human institutions as forming an invisible unity made up of the individual, society and values. Having received initial training in economics, Radhakamal began with a series of micro-level analyses of problems in economic sociology, such as rural economy and land problems (1926, 1927), population problems (1938), and the problems of the Indian working class (1945).

In the late 1920s, when the great depression had set in, he initiated a number of micro-level inquiries into the deteriorating agrarian solutions and the conditions of the peasantry in Oudh (1929). This study should have been a pace-setter in agrarian studies in India, but, except for Ramkrishna Mukherjee, who conducted a series of studies on agrarian structure in Bengal in the 1940s, this aspect of Indian rural society remained neglected till the 1960s.

After receiving training in social anthropology in England, Radhakamal naturally took a more active interest in micro-level empirical field investigations. These included studies on ‘inter-caste tensions’ and ‘urbanization’, particularly cities in transition (1991, 1952, 1963, and 1964) and the like.

What is interesting is that his involvement in micro-empirical sociology co-existed with his prediction towards a metaphysical and multidimensional philosophical view of human societies and social

institutions. He thought that sociology and social anthro-pology were logged down by lower order empirical realities and were forgetting the higher order ones whose laws and processes governed them.

He advocated and practised philosophical anthro-pology. In an almost meta-theoretical perspective, he tended to view individual, society and values as an apparent trinity, but quintessentially an indivisible unity (1931, 1949, 1950, 1956 and 1965). In this sense, Radhakamal was a pioneer of a transdisciplinary approach in Indian social science.

Writings: Mukerjee wrote around 53 books on several issues. The basic nature of his writings is the integration of the social sciences. He has been a path-finder in many fields. Many of his students and associates reflect this approach in their writings.

His contribution lay in the important areas of: (1) developing interdisciplinary, rather, trans-disciplinary approach in studying society, (2) social ecology and regional sociology, and (3) sociology of values or social structure of values.

Commenting on his contribution to knowledge about social life of men and women, the celebrated philosopher, Sarvapalli Radhakrishanan correctly observed: "What interests me is (Mukerjee's) attempt to base his thinking on Indian mysticism, his perception that human life is whole and cannot be studied in fragments.

Sociology or the science of man cannot ignore the question of values. Social sciences give us knowledge and if this knowledge is to be employed for the betterment or good of man, we must develop a sense of values. Mukerjee's great ambition is to work for a better social order."

A predilection towards metaphysics and the 'idealism' however was noticed in Mukerjee's earlier writings such as: 7. The Three Ways: The Way of Transcend list-Religion as a Social Norm (1929) 2. Sociology and Mysticism (1931) 3. The Theory and Art of Mysticism (1937

Check your progress-1
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

7. State contribution of Zavestoskis to society
2. What is the contribution of Dunalp and contribution?
3. What is the contribution of Radhakamal Mukherje?

…………………………………………………………………………
…………………………………………………………………………..........................
....

7.4 LET US SUM UP

In this unit, you have learnt about the contributions of sociologists to the society. This content might play a very important role in your service to society.

7.5 UNIT- END- EXERCISES

1. Define – Ecology.
2. Write down the Nature and scope of Ecology.
3. Explain the importance of studying ecology.

7.6 ANSWER TO CHECK YOUR PROGRESS

1. Incomplete Streets problematizes the Complete Streets concept, a movement in urban planning and policy to design and engineer streets to enable safe access for all users—pedestrians, bicyclists, motorists and transit riders. Complete Streets policies are typically justified in a number of ways, including their ability to meet a city’s sustainability and population health goals by making alternatives to the automobile viable. Incomplete Streets critically examines whether, or how, Complete Streets policies might undermine sustainability goals by exacerbating various forms of inequality.
2. According to Catton and Dunlap, however, significant blind spots still remained, the most important falling in the shadow cast by strong anthropocentrism and a worldview that was decidedly nonecological. This anthropocentric bias also dominated the field of organizational studies until the mid-1990s. Both sociology and organizational studies benefited from scholarly analyses conducted by Catton and Dunlap (and others) that uncovered underlying paradigmatic assumptions and that proposed ecologically grounded alternatives. But both fields still tend to be limited by anthropocentrism and need more research aimed at developing theories and models centered on ecological processes and radical organizing. Revisiting Catton and Dunlap's paradigms framework is suggested as a valuable step for both sociologists and organizational studies scholars interested in addressing major gaps in their fields.
3. Inspired by Seal to investigate reality in the specific context of India, by Geddes to unfold in its empirical details, and in the light of his basic training in economics, Mukerjee began his research career with field investigations and bibliographical research in economic sociology and human ecology. He

sustained his interest in empirical field investigations and throughout his life encouraged his students in this respect.

However, in course of time, Mukerjee empiricism became multidimensional, centred around the conceptualization of human institutions as forming an invisible unity made up of the individual, society and values. Having received initial training in economics, Radhakamal began with a series of micro-level analyses of problems in economic sociology, such as rural economy and land problems (1926, 1927), population problems (1938), and the problems of the Indian working class (1945).

In the late 1920s, when the great depression had set in, he initiated a number of micro-level inquiries into the deteriorating agrarian solutions and the conditions of the peasantry in Oudh (1929). This study should have been a pace-setter in agrarian studies in India, but, except for Ramkrishna Mukherjee, who conducted a series of studies on agrarian structure in Bengal in the 1940s, this aspect of Indian rural society remained neglected till the 1960s.

7.7 SUGGESTED READINGS

1. Chitamber, JB (1990) Introduction to Rural Sociology. Wiley Eastern Pvt. Ltd, New Delhi.
2. Desai, AR (1978) Rural Sociology in India. Popular Prakashan, Bombay.
3. Sharan, AK (1999) Social Psychology. Commonwealth Publishers. New Delhi
4. Desai, A.R. 1959 Social Background of Indian Nationalism. Popular Prakashan, Bombay.
5. Dube, S.C. 1955. Indian Village. Cornell University Press: New York.
6. Singh, Yogendra. 1979. “On the History of Sociology in India” in Mohini Mullick (ed.) Social Enquiry: Goals and Approaches. Manohar, Delhi.
7. Srinivas, M.N. and Panini 1986. “The Development of Sociology and Social Anthropology in India” in T.K. Oommen & Partha N. Mukherji (eds) Indian Sociology Reflections of Introspections, Popular Prakashan, Bombay. Emergence of Sociology in India.
8. https://study.com/academy/lesson/what-is-ecology-definition-lesson-quiz.html
9. Int. J. Innovation and Sustainable Development, Vol. 8, No. 4, 2014

UNIT- VIII

SYNTHESIS OF SOCIETAL AND ENVIRONMENTAL DIALECT

Structure

8.1 INTRODUCTION

The nature versus nurture debate is one of the oldest philosophical issues within psychology. So what exactly is it all about?

Nature refers to all of the genes and hereditary factors that influence who we are—from our physical appearance to our personality characteristics.

Nurture refers to all the environmental variables that impact who we are, including our early childhood experiences, how we were raised, our social relationships, and our surrounding culture.

Even today, different branches of psychology often take a one versus the other approach. For example, biological psychology tends to stress the importance of genetics and biological influences. Behaviorism, on the other hand, focuses on the impact that the environment has on behavior.

In the past, debates over the relative contributions of nature versus nurture often took a very one-sided approach, with one side arguing that nature played the most important role and the other side suggesting that it was nurture that was the most significant. Today, most experts recognize that both factors play a critical role.1 Not only that, but they also realize that nature and nurture interact in important ways all throughout life.

Do genetic or environmental factors have a greater influence on your behavior? Do inherited traits or life experiences play a greater role in shaping your personality? The nature versus nurture debate is one of the oldest issues in psychology. The debate centers on the relative contributions of genetic inheritance and environmental factors to human development.

Some philosophers such as Plato and Descartes suggested that certain things are inborn, or that they occur naturally regardless of environmental influences. Nativists take the position that all or most behaviors and characteristics are the results of inheritance.

Advocates of this point of view believe that all of our characteristics and behaviors are the result of evolution. Genetic traits handed down from parents influence the individual differences that make each person unique.

Other well-known thinkers such as John Locke believed in what is known as tabula rasa, which suggests that the mind begins as a blank slate. According to this notion, everything that we are and all of our knowledge is determined by our experience.

Empiricists take the position that all or most behaviors and characteristics result from learning. Behaviorism is a good example of a theory rooted in empiricism. The behaviorists believe that all actions and behaviors are the results of conditioning. Theorists such as John B. Watson believed that people could be trained to do and become anything, regardless of their genetic background.

For example, when a person achieves tremendous academic success, did they do so because they are genetically predisposed to be successful or is it a result of an enriched environment? If a man abuses his wife and kids, is it because he was born with violent tendencies or is it something he learned by observing his own parent's behavior?

A few examples of biologically determined characteristics (nature) include certain genetic diseases, eye color, hair color, and skin color. Other things like life expectancy and height have a strong biological component, but they are also influenced by environmental factors and lifestyle.

An example of a nativist theory within psychology is Chomsky's concept of a language acquisition device (or LAD).2 According to this theory, all children are born with an instinctive mental capacity that allows them to both learn and produce language.

Some characteristics are tied to environmental influences. How a person behaves can be linked to influences such as parenting styles and learned experiences. For example, a child might learn through observation and reinforcement to say 'please' and 'thank you.' Another child might learn to behave aggressively by observing older children engage in violent behavior on the playground.

One example of an empiricist theory within psychology is Albert Bandura's social learning theory. According to the theory, people learn by observing the behavior of others. In his famous Bobo doll experiment, Bandura demonstrated that children could learn aggressive behaviors simply by observing another person acting aggressively.

Even today, research in psychology often tends to emphasize one influence over the other. In biopsychology, for example, researchers conduct studies exploring how neurotransmitters influence behavior, which emphasizes the nature side of the debate. In social psychology, researchers might conduct studies looking at how things such as peer pressure and social media influence behaviors, stressing the importance of nurture.

8.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Acquires knowledge about nature and nurture
- ✓ Understand the synthesis of societal and environmental dialect

8.3 SYNTHESIS OF SOCIETAL AND ENVIRONMENTAL DIALECT

A scientific understanding of the nature and history of living beings depends crucially on our understanding of the most basic of biological processes that brought them about: development. Since ancient times this process has captured the imagination of scholars but has eluded a satisfactory explanation or consistent framework until today. From the beginning, the main problem in the interpretation of development has been the question of whether organisms are the result of the emergence of structures and processes not entirely predictable from the undifferentiated properties of the embryo, or whether they merely unfold or mature out of something preformed or predetermined from the beginning. The term development with its literal meaning of 'unfolding' unfortunately suggests this latter interpretation. Today's received view of development attempts to reconcile both visions: a (multicellular) organism begins as one cell packed with 'innate' information of how to build the phenotype, from which the final form emerges in interaction with the 'acquired' influences from the environment.

This 'interactionist consensus', however, perpetuates the nature-nurture debate by maintaining its inherent dichotomy. Despite being declared dead many times, this debate is alive and well today in the dichotomy of nature as the genetic, and stable, factors of development, and nurture as the environmental, and plastic influences (Kitcher, 2001).
The term nature is applied to those traits that seem genetically determined, fixed in their final form and are present in all cultures, as in discussion about Human Nature; the term nurture, on the other hand, implies variable rearing conditions, including human culture. In contrast to this received view,

Those different dichotomies, such as innate-acquired, inherited-learned, gene-environment, biology-culture, and nature-nurture, are not just inappropriate labels in themselves but they do not map neatly onto each

other: genes do not equal innate, biology, or nature, and neither does the environment stand for acquired, culture, or nurture. So-called innate traits include effects of the organism's extended inheritance of epigenetic factors, which are reliably reproduced with the help of ontogenetic niche construction. As a matter of fact, no developmental factor coincides with either nature or nurture, or so I contend. Instead I advocate new and scientifically more useful distinctions between developmental resources, and ultimately promote the understanding of 'nature' as the natural phenotypic outcome 'nurtured' by the natural developmental process leading to it.

To resolve the nature-nurture debate with a newly emerging view of development several distinct but related sub-problems need to be addressed (Stotz, 2006a) that, 1) An understanding of development requires a deep knowledge not only of the sequences of the genome but of their regulated expression. 2) We need to systematically question preconceptions of 'explanatory' categories of behavior, such as innate, acquired, genetically determined or programmed, or even just ascriptions such as 'genetic' trait or disease, all of which obscure the necessity of investigating developmental processes in order to gain insight into the actual mechanisms of behavior (see Moore this issue). 3) Especially in psychological research the concepts of 'development' and 'learning' need to be integrated instead of being studied in isolation and by distinct research traditions (see for instance Jones, this issue; Moore, this issue). 4) We require further a fuller understanding of the nature of inheritance that transcends the restriction to the genetic material as the sole hereditary unit. Instead, heredity must be more widely understood as the processes providing transgenerational stability through the reliable availability of developmental resources in the next generation either through its transmission or reproduction. 5) Ideas such as (developmental) niche construction and adaptive phenotypic plasticity, and the discussion of the difference between mere exposure to stimulation versus bioavailability suggest that ecological validity will be an indispensable factor for studying development and evolution, and how both processes interact with each other. 6) A new epigenetic understanding of development encompassing the organism in its developmental niche takes seriously the idea that all traits, even those conceived as 'innate', have to develop out of a single-cell state through the interaction between genetic and other resources of development.

8.3.1 Molecular Epigenesis

"A true appreciation of development will never emerge without a focus on the genome and its regulation by the environment, and it is precisely this field of biology that most forcefully demonstrates that the mere presence of a genetic variant, in all but theextreme cases, is not sufficient to explain variation at the level of the phenotype. ... It is not the mere presence of a gene that is of functional importance, but rather its expression. The structure of the genome highlights the importance of geneenvironment interaction." (Meaney, 2004: 5)

Genuine understanding of development depends on a knowledge not merely of the sequence of the genome, but of the regulated differential expression of these sequences. Genetic activity is involved in most biological processes, but so are non-genetic activities. Explanations that list only interacting genes are vacuous, or at the very least one-sided and incomplete. Postgenomic biology has brought with it a new conception of the 'reactive genome' – rather than the active gene – which is activated and regulated by cellular processes that include signals from the internal and external environment (Stotz, 2006a, 2006b).

8.3.2 The Reconceptualization of 'Explanatory' Concepts and Categories of Behavior

This section attempts to analyze a few overused concepts, dichotomies, metaphors, and shorthand formulations that are commonly used in the explanation of behavior. It claims that these, instead of being useful characterizations of behavior or shorthand classificatory schemes they sidestep deep explanatory analyses of developmental processes and therefore prevent useful and necessary further research into the nature and origin of characteristics or traits that we want to explain. To name just a few of such explanatory concepts: Nature-nurture; innateness; interaction; information; program; inheritance; gene action; maturation; genes-and-environment

8.3.3 Understanding and Integrating Development, Learning, Experience and Environment

In the last decade it has become fashionable for cognitive comparative psychologists to study animal behavior in an 'integrated' fashion to account for both the 'innate' and the 'acquired'. I argue that these studies of the animal learning against an evolutionary background, instead of really integrating the concepts of 'nature' and 'nurture', rather cement this old dichotomy. They combine empty nativist interpretations of behavior systems with blatantly environmentalist explanations of behavior acquisition. While in some areas of biology interest in the relationship between behavior and development has surged through topics such as parental effects, extragenetic inheritance, and phenotypic plasticity, this has gone almost completely unnoticed in the study of animal behavior in comparative psychology, and is frequently ignored in (cognitive) ethology too. Reasons for this may include the traditional focus on the function of behavior in its speciesspecific form in adult animals, which can favor a preformationist or deterministic conception of development, or generally the separation of psychology from biology. In psychology the process of learning is often set against the maturational unfolding of the young to the adult instead of being understood as part and parcel of behavioral development, either as a process that drives or explains certain developments, or a process influenced by other developmental processes. One of the necessary prerequisites to the integration of nature with nurture is to clarify the relationship between the concepts of learning and development, and to investigate whether and how both concepts can be usefully deployed in the study of animal behavior.

8.3.4 From Extended Inheritance to Ontogenetic Niche Construction

"The triumph of the reductionist path, from the instrumental particularization of heredity, through the hardening of the particles as material genes, to the resolution of the heredity material in molecular terms, could not, in the final analysis, provide the answer to the plight of inheritance. Heredity is a property immanent to living systems and needs the perspective of the life sciences." (Falk, 2000: 339)

8.3.5 Ecological Evolutionary Developmental Biology

The nature-nurture dichotomy is not reduced to the field of developmental biology and psychology but plays an important role in our conception of the process of evolution. One might even say that it was the very separation of nurture (germ line, genes) from nature (soma, environment, individual development) that cemented the exclusion of developmental biology from the Modern Synthesis of Evolution. The last two decades saw a growing interest in questions that the received view was not able to address, such as questions about patterns and processes of phenotypic evolution, and the origin of evolutionary novelty and innovation. A new synthesis of evolutionary developmental biology (evo-devo) began to form. From the Developmental Systems perspective, the elucidation of extended processes of inheritance made it clear that the reason to exclude so-called processes of nurture or individual development – for not producing heritable variation – no longer holds. Increasingly now, one hears that in order to situate a synthesis of development and evolution 'in the real world' the role of ecology needs to be fully integrated as well (Gilbert, 2001).

The rise of the new science of Entwicklungsmechanik (developmental mechanics) in the late 19th and beginning of the 20th century regarded the anatomical tradition, with its evolutionary context and its methods of observation of developing organisms in their natural context, old-fashioned and unscientific, and completely rejected any (at that time regarded as) mystical ideas of epigenesis.

8.3.6 A Postgenomic Synthesis: an Epigenetic Understanding of Development

The 'century of the gene' (Keller, 2000) spawned a new and more sophisticated preformationism, with the homunculus as the preformed 'form' of the organism replaced by the 'information' to make an organism encoded in the genome. This modern consensus accepts the emergence of qualitative change in development, which it explains with the preformed inherited genetic program as a materialized vital force directing the epigenesis of the organism out of a seemingly homogenous mass. Hence the new conception is rather a kind of 'animistic' predeterminism, where genes 'program' outcomes. True to the spirit of today's interactionism the mainstream 'modern consensus' can be "standardly construed as the epigenesis of something preformed in the DNA" (Robert, 2004: 34).

Check your progress-1
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

8. What are some examples of nature Vs nurture?
2. Synthesis of societal and environmental dialect.

…………………………………………………………………………
…………………………………………………………………………
…………………………………………………………………………

8.4 NATURE AND NURTURE INTERACT

What researchers do know is that the interaction between heredity and environment is often the most important factor of all. Kevin Davies of PBS's Nova described one fascinating example of this phenomenon.

Perfect pitch is the ability to detect the pitch of a musical tone without any reference. Researchers have found that this ability tends to run in families and believe that it might be tied to a single gene. However, they've also discovered that possessing the gene alone is not enough to develop this ability. Instead, musical training during early childhood is necessary to allow this inherited ability to manifest itself.

Height is another example of a trait that is influenced by nature and nurture interaction. A child might come from a family where everyone is tall, and he may have inherited these genes for height. However, if he grows up in a deprived environment where he does not receive proper nourishment, he might never attain the height he might have had he grown up in a healthier environment.

8.4.1 Contemporary Views of Nature vs. Nurture

Throughout the history of psychology, however, this debate has continued to stir up controversy. Eugenics, for example, was a movement heavily influenced by the nativist approach. Psychologist Francis Galton, a cousin of the naturalist Charles Darwin, coined both the terms nature versus nurture and eugenics and believed that intelligence was the result of genetics. Galton believed that intelligent individuals should be encouraged to marry and have many children, while less intelligent individuals should be discouraged from reproducing.

Today, the majority of experts believe that both nature and nurture influence behavior and development. However, the issue still rages on in many areas such as in the debate on the origins of homosexuality and influences on intelligence. While few people take the extreme nativist or

radical empiricist approach, researchers and experts still debate the degree to which biology and environment influence behavior.

Increasingly, people are beginning to realize that asking how much heredity or environment influence a particular trait is not the right approach. The reality is that there is not a simple way to disentangle the multitude of forces that exist. These influences include genetic factors that interact with one another, environmental factors that interact such as social experiences and overall culture, as well as how both hereditary and environmental influences intermingle. Instead, many researchers today are interested in seeing how genes modulate environmental influences and vice versa.

Check your progress-2
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

3. State the contemporary views of nature Vs nurture?

…………………………………………………………………………
……………………………………………………………………………
……………………………………………………………………………

8.5 LET US SUM UP

In this unit, you have learnt about the nature and nurture and synthesis of societal and environmental dialect. This content might play a very important role in your service.

8.6 UNIT- END- EXERCISES

1. What is nature and nurture in psychology?
2. Synthesis of societal and environmental dialect.

8.7 ANSWER TO CHECK YOUR PROGRESS

1. An example of a nativist theory within psychology is Chomsky's concept of a language acquisition device (or LAD).2 According to this theory, all children are born with an instinctive mental capacity that allows them to both learn and produce language.
   Some characteristics are tied to environmental influences. How a person behaves can be linked to influences such as parenting styles and learned experiences. For example, a child might learn through observation and reinforcement to say 'please' and 'thank you.' Another child might learn to behave aggressively by

observing older children engage in violent behavior on the playground.

One example of an empiricist theory within psychology is Albert Bandura's social learning theory. According to the theory, people learn by observing the behavior of others. In his famous Bobo doll experiment, Bandura demonstrated that children could learn aggressive behaviors simply by observing another person acting aggressively.

2. Molecular Epigenesis
   The Reconceptualization of 'Explanatory' Concepts and Categories of Behavior
   Understanding and Integrating Development, Learning, Experience and Environment
   From Extended Inheritance to Ontogenetic Niche Construction
   Ecological Evolutionary Developmental Biology
3. Throughout the history of psychology, however, this debate has continued to stir up controversy. Eugenics, for example, was a movement heavily influenced by the nativist approach. Psychologist Francis Galton, a cousin of the naturalist Charles Darwin, coined both the terms nature versus nurture and eugenics and believed that intelligence was the result of genetics. Galton believed that intelligent individuals should be encouraged to marry and have many children, while less intelligent individuals should be discouraged from reproducing.
   Today, the majority of experts believe that both nature and nurture influence behavior and development. However, the issue still rages on in many areas such as in the debate on the origins of homosexuality and influences on intelligence. While few people take the extreme nativist or radical empiricist approach, researchers and experts still debate the degree to which biology and environment influence behavior.

8.8 SUGGESTED READINGS

1. Gillette, John Morris. *Constructive rural sociology*. Sturgis & Walton Company, 1915.
2. Mukherjee, Ramkrishna 1979. Sociology of Indian Sociology. Allied Publishers, Bombay.
3. Singh, Yogendra. 1979. "On the History of Sociology in India" in Mohini Mullick (ed.) Social Enquiry: Goals and Approaches. Manohar, Delhi.
4. Srinivas, M.N. and Panini 1986. "The Development of Sociology and Social Anthropology in India" in T.K. Oommen & Partha N. Mukherji (eds) Indian Sociology Reflections of Introspections, Popular Prakashan, Bombay. Emergence of Sociology in India.

5. https://study.com/academy/lesson/what-is-ecology-definition-lesson-quiz.html
6. https://www.verywellmind.com/what-is-nature-versus-nurture-2795392

UNIT- IX

ENVIRONMENTAL ISSUES

Structure

9.1 INTRODUCTION

The several processes that all human societies in all ages have had in common, none has been more fundamental than their continual interaction with their natural environment. In fact, more than any other aspect of human endeavour, the diverse modes of human societal interaction with the larger ecological setting provide the basis for a genuinely global history of humanity. But, unlike so many of the other themes and patterns from which world history can be constructed, environmental history transcends the human experience. Due to the profound technological and scientific transformations that have occurred over the past millennium, it has come to effect – often fatally in recent centuries – every species of living creature on earth. The environment is a whole, albeit a complicated one, with many interfacing components. The wise management of the environment depends upon an understanding of its components: its rocks, minerals and waters, its soils and their present and potential vegetation, its animal life and potential for livestock husbandry, and its climate. Positive and realistic planning is needed to balance human needs against the potential the environment has for supporting these needs.

Environmental studies deal with every issue that affects a living organism. It is essentially a multidisciplinary approach that brings about an appreciation of our natural world and human impact on its integrity. It is an applied science, as it seeks practical answers to the increasingly important question of how to make civilisation sustainable on the Earth's finite resources. If we study the natural history of the areas in which we live, we would see that our surroundings were originally a natural landscape, such as a forest, a river, a mountain, a desert or a combination of these elements. Most of us live in landscapes that have been profoundly modified by human beings. Our dependence on nature is so great that we cannot continue to live without protecting the Earth's environmental resources. Most traditional societies have learned that respecting nature is vital in protecting their own livelihoods. This had led to many cultural practices that have helped traditional societies protect and preserve their natural resources. Respect for nature and all living creatures is not new to India; all our traditions are based on these values. Emperor Ashoka's edict proclaimed that all forms of life are important for our well-being, and this was as far back as the 4th century BC.

9.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Acquires knowledge about environment
- ✓ Understand the different environmental issues and its route cause

1.3 ENVIRONMENT

The sum total of all surroundings of a living organism, including natural forces and other living things, which provide conditions for development and growth as well as of danger and damage. The word environment is derived from the French verb 'environer' which means to 'encircle or surround.' Thus our environment can be defined as the physical, chemical and biological world that surround as well as the complex of social and cultural affecting an individual or community. This broad definition includes the natural world and the technological environment as well as the cultural and social context that shape human lives. It includes all factors living and non living that affect an individual organism or population at any point in the life cycle. Set of circumstances surrounding a particular occurrence and all the things that surround us.

It is essentially a multidisciplinary approach and its components include biology, geology,chemistry, physics, engineering, sociology, health sciences, anthropology, economics, statistics and philosophy. .Environmental science is a Interdisciplinary subject which deals with each and every aspect of life i.e. related with us. It requires the knowledge of various other subjects like biology, chemistry, physics, statistics, micro-

biology, bio-chemistry, geology, economics, law, sociology etc Environmental science integrates physical and biological sciences, to the study of the environment, and the solution of environmental problems. Environmental science provides an integrated, quantitative, and interdisciplinary approach to the study of environmental systems. Related areas of study include environmental studies and environmental engineering. Environmental studies incorporates more of the social sciences for understanding human relationships, perceptions and policies towards the environment. Environmental engineering focuses on design and technology for improving environmental quality in every aspect.

Environmental scientists work on subjects like the understanding of earth processes, evaluating alternative energy systems, pollution control and mitigation, natural resource management, and the effects of global climate change. Environmental issues almost always include an interaction of physical, chemical, biological and socio-cultural processes. Environmental scientists bring a systems approach to the analysis of environmental problems.

Environmental science came alive as a substantive, active field of scientific investigation in the 1960s and 1970s driven by (a) the need fo r a multi-disciplinary approach to analyze complex environmental problems, (b) the arrival of substantive environmental laws requiring specific environmental protocols of investigation and (c) the growing public awareness of a need for action in addressing environmental problems. . It is a relatively new field of study which has evolved from integrated use of many disciplines.. It creates awareness and understanding of environmental concepts which may be scientific, social and ecological systems thereby providing a platform for solution to various environmental problems

Check your progress-1
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

9. What do you mean by Environment?

……………………………………………………………………………
………………………………………………………………………………

9.4 ENVIRONMENTAL ISSUES

Our planet is plagued by environmental problems that deplete natural resources and strain livelihoods, many of which are exacerbated by poor industrial practices. If left unchecked, environmental problems negatively impact businesses both directly, as in supply chain disruptions, and indirectly, as in health hazards that lead to loss of man-hours and

efficiency. Following are some common environmental issues that need to address to ensure sustainability and long-term viability.

9.4.1 Issues pertaining to Population

It's no secret that the planet faces serious environmental concerns from water and air pollution to deforestation. While the causes are complex, one significant contributor to the problem is population growth. Understanding the relationship between population growth and environmental issues may be the first step toward identifying real solutions

More people require more resources, which means that as the population increases, the Earth's resources deplete more rapidly. The result of this depletion is deforestation and loss of biodiversity as humans strip the Earth of resources to accommodate rising population numbers. Population growth also results in increased greenhouse gases, mostly from CO_2 emissions. For visualization, during that same 20th century that saw fourfold population growth, CO_2 emissions increased twelvefold. As greenhouse gases increase, so do climate patterns, ultimately resulting in the long-term pattern called climate change.

The Biggest Impacts

The use of resources and the impact of environmental issues are not equal around the globe. People in developed countries require substantially more resources to maintain their lifestyles compared with people in developing countries. For example, the United States, which contains 5 percent of the world's population, currently produces a full 25 percent of CO_2 emissions.

People in developing countries tend to feel the impacts of environmental problems more acutely, especially if they live in coastal areas directly affected by sea level rise and the extreme weather events that accompany climate change. The most vulnerable populations also experience decreased access to clean water, increased exposure to air pollution and diseases – which may result from decreased biodiversity – and may feel the impact more immediately as local resources including plants and animals deplete.

While the interconnected problems of population growth and environmental issues seem overwhelming, it is important to remember that humans can make changes that positively impact the planet. One good starting point is understanding and applying the concept of sustainability, which is the opposite of resource depletion. Sustainability describes a model of resource usage in which the current generation uses only the resources the Earth provides indefinitely (like solar or wind power instead of burning fossil fuels) to ensure that future generations inherit resources.

9.4.9.1 Land Degradation

There are many examples of human failure to use land resources sustainably. Deforestation occurs when humans clear forests to use the land either for agriculture or for habitation. Consequently, forest cover dwindles significantly, leading to soil erosion and extinction of plant species. Land animals also decline in numbers and even face extinction due to human expansion that encroaches on their natural habitat and limits their ability to spread geographically.

9.4.9.2 Air Pollution

One of the biggest environmental impacts of human activities is air quality. The transportation sector contributes heavily to air pollution because most forms of transportation, including cars, planes and ocean vessels, use fossil fuels. When burned, fossil fuels release carbon dioxide and other greenhouse gases into the environment.

In addition, the manufacturing industry grows exponentially with the expansion of the human population. Manufacturing plants emit carbons and sulfurs that do not occur naturally in the environment, causing an imbalance in the quality and composition of air. Some air pollutants deplete the ozone layer and expose the Earth to dangerous radiation from the sun.

9.4.9.3 Water Contamination and pollution

Human intervention in the environment also jeopardizes the supply and flow of clean drinking water. Activities like waste disposal from residential, commercial and industrial areas, oil spills and runoff from agriculture all contaminate bodies of water. The direct deposit of pollutants into lakes, rivers, seas and streams and indirect runoff of hazardous substances during the rainy seasons both impact water sources. Another environmental issue impacting water systems is overfishing, which causes a reduction in diversity of marine life.

Sources of water pollution

There are two main sources of water pollution in a water body:

i. Point sources ii. Non- point sources

The total waste load in a water body is represented by the sum of all point and non- point sources. Pollution of water resources can be caused by one or more of the sources: i) atmospheric dissolved gases ii) weathering of soil and rock minerals iii) decomposition of animals and vegetable materials.

9.4.9.4 Climate Change

Human activities in the environment interfere with the planet's natural balance, making the Earth's climate less stable and predictable. Climate change brings abnormal occurrences such as unprecedented flooding; increased numbers of storms, hurricanes and typhoons; fiercer brush fires; and most notably tsunamis, which are uncommon in the Earth's recent history. Phenomena such as rising sea levels, unseasonably high temperatures and drought hint toward an environment that cannot take much more negative human impact.

9.4.2 Issues Pertaining to Water

Water pollution is emerging as a threat to all mankind. The term "water quality" is intimately related to water pollution. Water quality refers to the physical, chemical and biological characteristics of water. Water is indispensable for our life. Water is said to be polluted, when it is hanged in its quality and composition directly or indirectly by man's activity so that it becomes less suitable for drinking, domestic, agricultural or any other purpose. Soil erosion, digging of minerals from rocks, decaying of organic matter are natural sources of water pollution. Water pollution is the contamination of water bodies (e.g. lakes, rivers, oceans, aquifers and groundwater), very often by humanactivities.

Water pollution occurs when pollutants (particles, chemicals or substances that make water contaminated) are discharged directly or indirectly into water bodies without enough treatment to get rid of harmful compounds. Pollutants get into water mainly by human causes or factors.

Water pollution is the second most imperative environmental concern long with air pollution. Any change or modification in the physical, chemical and biological properties of water that will have a detrimental consequence on living things is water pollution. The water pollution problem covers over 70% of the Earth's surface. It is a very important resource for people and the environment. Water pollution affects drinking water, rivers, lakes and oceans all over the world. In many developing countries, it is usually a leading cause of death, by people drinking from polluted water sources.

Water pollution can be studied under the following heads:

1. Medium in which it occurs (ground water, surface water)
2. Habitat (lakes, open seas
3. Type of pollutants (bacterial, metallic, thermal and radicative)

Water pollution can be defined in a number of ways,

1. Water pollution is the presence of any foreign substance (organic, inorganic, biological and radiological) in water which tends to degrade the quality so as to constitute a hazard, or impairs the usefulness of water
2. Courts of law define water pollution as "any impairment of water quality that makes unsuitable for beneficial use.

9.4.3 Issues Pertaining to Sanitation

Sanitation is the hygienic means of promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewage wastewater. Hazards can be physical, microbiological, biological or chemical agent of disease. Sanitation generally refers to the provisions of facilities and services for the safe disposal of human urine.

Inadequate sanitation is a major cause of disease world-wide and improving sanitation is known to have a significant beneficial impact on health both in households and across communities. The world sanitation also refers to the maintenance of hygienic conditions, through services such as garbage collection and waste water disposal. The sanitation technology in urban areas is the collection of waste water in rivers; its treatment is wastewater treatment plant for reuse or disposal in rivers, lakes or the sea.

The poor sanitation lead to many diseases such as trachoma and soil transmitted Helminthiases, diarrhea. Children suffering for diarrhea are more vulnerable to become underweight. Sanitation is a serious issue that is affecting most parts of the world especially the developing countries. On the global scale, the most affected are children who in most cases lose their line due to diseases caused by poor sanitation.

In many suburban and rural areas households are not connected to sewers. They discharge their water waste into septic tanks or other type of on-site sanitation. On-site systems include drain fields which require significant area of land. The reuse of untreated waste water in irrigated agriculture is common in developing countries. Ecological sanitation is sometimes presented as a radical alternative to conventional sanitation systems. Ecological sanitation is based on composting or vermin composing toilets where an extra separation of urine and feces at the source for sanitation and recycling has been done. The importance of the isolation of waste lies in an effort to prevent diseases which can be transmitted through human waste, which afflict both developed countries as well as developing countries to differing degrees. It is estimated that up to 5 million people die each year from preventable water-borne diseases; as result of inadequate sanitation and hygiene practices.

9.4.4 Issues pertaining to Pollution

We use the word "pollution" all the time, and the word carries certain connotations, but most of us would have difficulty in defining the term specifically. Pollution is the introduction by man, directly of indirectly, of substances or energy into the environment to such a degree that environmental conditions change.

Pollution is the introduction of contaminants into the natural environment that cause adverse change. Pollution can take the form of chemical substances or energy, such as noise, heat or light. Pollutants, the components of pollution, can be either foreign substances/energies or naturally occurring contaminants.

Pollution is the act of introducing harmful substances to the environment that results in harming the natural surroundings. Substances that cause pollution are referred to as pollutants. These polluting substances are so diverse and they include chemical products, waste material, light, heat, and noise among others.

Pollution in all forms is a major environmental issue in India. Any undesirable change in the environment, air, water, land, soil, etc. can be termed as pollution. These changes could be in the physical, chemical or even biological changes. The agents that bring about or cause this pollution are called pollutants.

In India, there are many laws that help in curbing pollution. These laws are intended to protect the environment as well as improve its quality. One such act is the Environment (Protection) Act, 1986.

The types of pollution are,

9.4.4.1 Air Pollution

When the atmosphere is filled with toxic gases released as result of industrial or other economic activities, it results in polluting the atmosphere and the air in the environment. This is nothing but air pollution.

9.4.4.2 Water Pollution

With the natural water resources' depleting day by day, water is a scarce commodity. But, even in these times, the water sources are polluted by pollutants from various sources, making them unfit for human consumption.

9.4.4.3 Garbage Pollution

When we do not adhere to proper waste disposal mechanisms, waste accumulates, causing garbage pollution. So the only way to address this issue is to ensure a proper waste disposal system that does not contaminate the environment.

9.4.5 Issues Pertaining to Energy

Energy is an essential component of all development programmes. Without energy, modern life would cease to exist. We need energy to maintain physical comfort in much of the world, to win and manufacture useful materials and artefacts, for transport, for communications, for agriculture and for industry in general.

Energy can be made available by harnessing natural energy flows such as moving water, solar radiation and wind, and mainly by using fuels such as wood, coal, oil, natural gas and uranium. However, the harnessing and utilization of energy is associated with worrying problems, namely, depletion and environmental damage.In this lesson, we examine these environmental problems.

9.4.5.1 The Problem of Depletion

Energy resources all over the world are getting depleted. Over 90 percent of all the energy used in the entire world comes from fossil fuels (coal, oil and gas) that are exhaustible. Millions of years ago, organic matter (the remains of plants and animals) decayed and built up into thick layers. Over time, mud and soil that covered the organic matter changed into rock and trapped the organic matter beneath. Pressure and heat changed some of the organic matter into coal, some into oil (petroleum), and some into natural gas. Currently, the world uses in one year an amount of fossil fuels that took nature roughly one million years to produce. At our present rate of consumption, and assuming no population increase, all the known oil reserves could be exhausted by the middle of this century and natural gas by 2070. Coal supplies will last much longer – for roughly 200 years at current consumption rates. We must however note that new deposits of fossil fuels continue to be discovered from time to time.

9.4.5.2 Energy-Related Environmental Damage

Apart from the problem of energy resources getting depleted, energy harnessing and utilization cause an immense amount of environmental damage. There are environmental problems associated with the use of almost all forms of energy. In this section we examine some problems associated with the use of fossil fuels, fuel wood, uranium, hydro power plants and wind energy.

Problems Associated with the Use of Fossil Fuels

Global warming: Global warming refers to the gradual increase in the average temperature of the Earth's surface and its atmosphere which has been attributed to the accumulation of greenhouse gases. The main greenhouse gases are carbon dioxide (CO2), methane (CH4), water vapour, nitrogen oxides (NOX) and chlorofluorocarbons (CFCs). All the greenhouse gases except CFCs are naturally produced and their concentrations in the atmosphere are increasing due to human activities.

CO2 is the main greenhouse gas, accounting for more than 50 percent of the global temperature rise. This has occurred because of the burning of fossil fuels and wood products.

Methane may be produced naturally when wet organic matter decomposes under bacteria action in the absence of oxygen. Such decompositions could take place in landfills, swampy/paddy fields, digestive tracks of ruminants and termites and septic tanks. Man induced methane emissions may come from leaks in natural gas distribution systems, leaks of refinery gases in petroleum reefing and coal mining.

The burning of fossil fuels also produces significant amounts of nitrous oxides. Rise in mean (average) global temperature, Rising sea levels, Occurrence of weather extremes, Shifting of vegetative zones

Acid rains: Acid rains are caused by the release of sulphur dioxide (SO2) and oxides of nitrogen (NOx) when fossil fuels burn. The oxides combine with water vapour in the air to form acids, which return to the ground as acid rain. It is important to note that acidified clouds could travel great distances before releasing the acid rain.

The problems posed by acid rains include corrosion of the built environment, soil degradation, water pollution and depletion of forests. Corrosion of the built environment. Acids are corrosive. Acid rains corrode the built environment including buildings, statues and metal bridges.

Soil degradation: In soil, acid rains combine with nutrients needed by plants to form compounds that may be of little or no use to plants. Thus, acid rains remove useful nutrients that support plant life. This could adversely affect agriculture.

Water pollution: Water bodies are polluted when acid rains dissolve toxic substances such as aluminium and mercury and deposit them in water bodies including underground water. Acid rains also make water bodies acidic. Acid rains could cause lakes, ponds and rivers to loose aquatic. For example, it has been observed that some lakes in Europe have become so acidic that they can no longer support life.

Forest depletion: Removal of useful nutrients when acid rains combine with them could adversely affect plants. Additionally, acid rains attack trees more directly by causing dead spots on the leaves and barks of trees. This reduces the ability of the plants to make their own food through photosynthesis. The dead spots also make the trees vulnerable to insect infestations.

Dangers posed by leaded fuels: The oil industry adds lead to petrol (gasoline) to help engines run more smoothly. Vehicles that burn leaded gasoline pour out leaded fumes that contaminate the air. The World Health Organisation (WHO) has established that smoke from the combustion of leaded fuels in vehicles causes cancer and high blood pressure in adults and in children it impairs mental development, reduces intelligence thus hindering learning ability and causes behavioural disorders.

Oil spills: This is leakage of fuel oil from storage vessels, oil tankers, pipelines, tanker trucks or other vessels used for transporting fuel oil. Oil spills seriously damage the land, vegetation, and water bodies, including the oceans. Fuel oil is poisonous if ingested by animals. In addition, spilled oil damages the feathers of birds or the fur of animals, often causing death.

Gas leaks and explosions: Gas leaks and explosions sometimes accompany the harnessing and utilization of fossil fuels especially in the coal mines and storage plants. The explosions are sometimes accompanied

by fire outbreaks. Gas leaks and explosions have claimed several lives, caused severe injuries to people and destroyed property worldwide.

Water pollution caused by poorly managed coal mines: Excavated areas that have been strip mined for coal but are not filled and revegetated cause water pollution as surface water runoff from the mined area can flush sediments and sulphur-bearing compounds into nearby streams and rivers. This could endanger human life, plant and wildlife communities.

Air pollution: Emissions from vehicles, thermal power plants and factories contain unburned hydrocarbons, particulates, carbon dioxide, carbon monoxide and oxides of nitrogen and sulphur that contribute to the lowering of the quality of air. These substances in the air could irritate the eyes, throat and the lungs.

Problems Associated with the Use of Uranium: Uranium is used in nuclear power plants (NPP) to produce electricity. During the splitting of atoms (nuclear fission) of uranium within a nuclear reactor, large amounts of heat are produced. The heat from the reactor is used to produce steam. The steam turns a turbine which in turn, drives an electric generator to produce electricity.

Mutation and malformations: genetic changes may appear in later generations of both plants and animals such as Miscarriages, Premature births, sterility, Cancer, Malfunctioning of certain body organs
Radiation sickness and possible death - Large amounts of radiation delivered in a short span of time damage both bone tissue and blood cells, causing radiation sickness and death.

Apart from the radiation-related problems, nuclear power plants pose thermal or heat pollution as they release much more heat than conventional thermal power plants. To cool its apparatus a nuclear power plant sucks large amounts of cool water from nearby water body such as a river or lake, and then sends the water back warm. With the rising temperature of the river or lake, the oxygen content of the water is reduced. Not only can this kill the aquatic animals in the river or lake, but often it fosters the growth of algae. Decaying algae consume more oxygen. Soon the water may begin to smell and taste bad.

Hydropower plant: The environmental and economic impact of building a hydro-plant on a local river can be catastrophic. The construction of dams leads to the loss of terrestrial habitats through flooding and the displacement of people often from some of the world's most fertile land. Dams also destabilize freshwater ecosystems worldwide. For example, a significant proportion of the world's freshwater fish are now endangered or extinct as a result of the construction of dams. Also affected are oceanic fish such as salmon, which can be blocked in their attempt to swim back upstream to spawn. Even the generally held view that hydropower is pollution free is now in doubt. This is because rotting

organic matter that ends up in the dams releases large amounts of greenhouse gases, mainly methane, into the atmosphere. There is also the social cost. The construction of dams is also accompanied by increase in water-borne diseases like bilharzias.

Wind Energy: The major problem associated with the harnessing of wind energy is noise pollution. The noise generated from wind farms can be a nuisance. People living close to wind farms have complained about the whamming noise. Additionally, there are other problems that are relatively less serious. Among them is visual pollution. Wind turbines erected on hill sides distort the natural beauty of the hills. Wind mills cause TV and radio interference. There could also be damage or injury from possible mishaps in cases where there is danger that rotors might break or shed ice. The blades of the rotating rotors hit and kill flying birds.

Check your progress-2
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

2. State the issues of population growth.
3. State the types of pollution

…………………………………………………………………………
…………………………………………………………………………………
…………………………………………………………………………………

9.7 LET US SUM UP

In this unit, you have learnt about the meaning of environment, environmental issues pertaining to population, water, sanitation, pollution and energy. Thus, this unit of environmental issues would have brought you closer to know the meaning of environment, environmental issues pertaining to population, water, sanitation, pollution and energy, its usage in your educational career. This content might play a very important role in your environmental service.

9.8 UNIT- END- EXERCISES

1. Define – Environment.
2. Explain the environmental issues pertaining to population.
3. Describe different types of pollution.

9.9 ANSWER TO CHECK YOUR PROGRESS

1. The sum total of all surroundings of a living organism, including natural forces and other living things, which provide conditions for development and growth as well as of danger and damage. The word environment is derived from the French verb 'environer' which means to 'encircle or surround.' Thus our environment can be defined as the physical, chemical and biological world that surround as well as the complex of social and cultural affecting an individual or community. This broad definition includes the natural world and the technological environment as well as the cultural and social context that shape human lives. It includes all factors living and non living that affect an individual organism or population at any point in the life cycle. Set of circumstances surrounding a particular occurrence and all the things that surround us.
2. The use of resources and the impact of environmental issues are not equal around the globe. People in developed countries require substantially more resources to maintain their lifestyles compared with people in developing countries. For example, the United States, which contains 5 percent of the world's population, currently produces a full 25 percent of CO_2 emissions.

   People in developing countries tend to feel the impacts of environmental problems more acutely, especially if they live in coastal areas directly affected by sea level rise and the extreme weather events that accompany climate change. The most vulnerable populations also experience decreased access to clean water, increased exposure to air pollution and diseases – which may result from decreased biodiversity – and may feel the impact more immediately as local resources including plants and animals deplete.

   While the interconnected problems of population growth and environmental issues seem overwhelming, it is important to remember that humans can make changes that positively impact the planet. One good starting point is understanding and applying the concept of sustainability, which is the opposite of resource depletion. Sustainability describes a model of resource usage in which the current generation uses only the resources the Earth provides indefinitely (like solar or wind power instead of burning fossil fuels) to ensure that future generations inherit resources.
3. The types of pollution are,

   Air Pollution: When the atmosphere is filled with toxic gases released as result of industrial or other economic activities, it results in polluting the atmosphere and the air in the environment. This is nothing but air pollution.

Water Pollution: With the natural water resources' depleting day by day, water is a scarce commodity. But, even in these times, the water sources are polluted by pollutants from various sources, making them unfit for human consumption.

Garbage Pollution: When we do not adhere to proper waste disposal mechanisms, waste accumulates, causing garbage pollution. So the only way to address this issue is to ensure a proper waste disposal system that does not contaminate the environment.

9.10 SUGGESTED READINGS

1. Butti, Ken, and John Perlin, A golden thread : 2500 years of solar architecture and technology (Palo Alto : Cheshire Books; New York : Van Nostrand Reinhold, 1980).
2. Glacken, Clarence J, 1973, Traces on the Rhodian shore; nature and culture in Western thought from ancient times to the end of the eighteenth century (Berkeley: University of California Press).
3. Grove, Richard H, 1995. Green Imperialism: Colonial Expansion, Tropic Island Edens and the Origins of Environmentalism (Cambridge, UK: Cambridge University Press).
4. Hughes, J. Donald, 1994, Pan's Travail: Environmental Problems of the Ancient Greeks and Romans (Baltimore: Johns Hopkins University Press, 1994 reprint).
5. Hughes, J. Donald, 1975 Ecology in Ancient Civilisations. (Albuquerque, N.M.: University of New Mexico Press, 1975).
6. Nriagu, J. Lead and Lead Poisoning in Antiquity. (New York: Wiley Interscience, 1983). Perlin, John: A forest journey : The role of wood in the development of civilisation (Cambridge, Mass.: Harvard University Press, 1991)
7. Impact. Baltimore, Md.: Johns Hopkins University Press, 1986. Ecology of New England. New York: Hill and Wang.
8. Kolodny, A. 1984. The Land Before Her: Fantasy and Experience of the American Frontiers, 1630-1860. Chapel Hill, N.C.: University of North Carolina Press.
9. McMahon, Michal, 1994 "Publick Service versus Mans Properties: Dock Creek and the Origins of Urban Technology in Eighteenth Century
10. Philadelphia," in Judith A. McGaw, ed., Early American Technology: Making & Doing Things from the Colonial Era to 1850, Chapel Hill, N.C. University of N.C. Press.
11. Mumford, Lewis 1961 The City in History, NY: Harcourt, Brace & World. Thoreau, Henry David, 1854, Walden and other writings, NY: Bantam.
12. Cohen, M. 1984. The Pathless Way: John Muir and American Wilderness. Madison, WI: University of Wisconsin Press. Also see

Cohen's History of the Sierra Club, 1988, San Francisco, CA: Sierra Club Books.
13. Jones, H. R. 1965. John Muir and the Sierra Club: The Battle for Yosemite. San Francisco, CA: Sierra Club Books.
14. Merchant, Carolyn, 1989. Earthcare: Women and the Environmental Huntington, N.Y. : R. E. Krieger Pub. Co., 1976, c1920.
15. Goldmark, J. 1953. Impatient Crusader: Florence Kelly's Life Story. Westport, Conn.: Greenwood Press.
16. Kovarik, W., 1996, Henry Ford, Charles Kettering and the Fuel of the Future, paper to the Society of Automotive Historians, Dearborn, Mich., reprinted in Automotive History, spring 1998.
17. Kovarik, W. 1994. Charles F. Kettering and the Development of Tetraethyl Lead in the Context of Alternative Technologies. Proceedings of the Society of Automotive Engineers, Paper 943924, Baltimore, Maryland. (24 October).
18. Rosner, D. and Markowitz, G. 1989. Dying for Work: Workers Safety and Health in Twentieth Century America. Bloomington, Ind.: Indiana University Press.
19. Sicherman, Barbara. 1984. Alice Hamilton: A Life in Letters. Cambridge, Mass.: Harvard University Press.
20. Borkin, Joseph, 1978. The Crime and Punishment of I.G. Farben. New York: Free Press (Borkin was the deputy attorney general under Thurmond Arnold in charge of prosecuting the oil and chemical companies for treasonous connections to the Nazis at the opening of WWII.)

UNIT- X
HOUSING, URBANIZATION AND RURAL POVERTY

Structure

10.1 INTRODUCTION

Urbanization is pervasive and recent phenomenon. In present global atmosphere, all nations undergo with the challenges of environment, social, transportation, economy in their respective cities. These issues are commonly occurred in developing countries due to the difference of development in cities and villages (Latif Fauzi, 2007). Most of countries focus on development of cities instead of rural areas. Consequently, the urban areas are equipped with infrastructure, public facilities as well as provide employment opportunities compared to the rural areas. Therefore inhabitants are more attracted to migrate in cities to avail hi tech facilities, enhance their lifestyles and ultimately these activities raise numerous urbanization issues. Cities have major role to enhance economic growth and prosperity. The sustainable development of cities largely depends upon their physical, social and institutional infrastructure. An urban area is spatial concentration of people who are working in non-agricultural activities. The essential characteristic is that urban means non-agricultural. Urban can also be explained as a fairly multifaceted concept. Criteria used to define urban can include population size, space, density, and economic organization. Typically, urban is simply defined by some base line size, like 20 000 people (Long 1998).

10.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Acquires knowledge about housing and poverty
- ✓ Understand the urban development, rural poverty
- ✓ Explain the importance of urban development

10.3 CONCEPT OF HOUSING, PROBLEMS AND REMEDIES

1.3.1 Housing

Housing, or more generally living spaces, refers to the construction and assigned usage of houses or buildings collectively, for the purpose of sheltering people — the planning or provision delivered by an authority, with related meanings. The social issue is of ensuring that members of society have a home in which to live, whether this is a house, or some other kind of dwelling, lodging, or shelter. Many governments have one or more housing authorities, sometimes also called a housing ministry, or housing department.

It is another intense problem due to urbanization in India. Overcrowding leads to a constant problem of scarcity of houses in urban areas. This problem is particularly more severe in those urban areas where there is large invasion of jobless or underemployed immigrants who could not find place to live when they come in cities and towns from the nearby areas. The major factors for housing problems are lack of building materials and financial resources, insufficient expansion of public utilities into sub-urban areas, poverty and unemployment of urban immigrants, strong caste and family ties and lack of enough transportation to sub-urban areas where most of the available land for new construction is to be found.

10.3.2 Dimensions of the Problem and Remedies

10.3.2.1 Un-planned growth of settlements

A number of housing clusters have mushroomed in and around various metropolitan centres in haphazard and unplanned manner, without a proper layout and devoid of service lines and other essential facilities. These unauthorized developments are encroachments on land parcels belonging to Govt. bodies, public- private-institutions or areas meant to be green belts. The removal/ re-settlement of these overcrowded un-hygienic clusters, commanding massive vote banks, is a serious challenge to correcting these aberrations for a planned growth of cities, especially in our democratic set-up? Therefore, massive concerted effort needs to be made with best of administrative actions and deft political handling for the sake of our future generations.

10.3.2.2 Non availability of developed land and ineffective and unfavorable land management

There is dearth of developed and serviced land parcels at reasonable rates, especially to meet the needs of most needy section of society. The slum clusters currently inhabited by these deprived sections are located in high land cost neighborhoods near central business districts of the metropolitan centres. These land parcels dotted with shanties apart from being eye sores and not properly serviced also mean in-appropriate and gross under utilization of precious land banks.

There is lack of development and enforcement of master planning for long–term growth of cities with earmarked areas for different sectors of growth like light/heavy industry, commercial, Education, health, housing forests and parks etc. serviced by appropriate infrastructure and transportation system. Therefore earmarking of appropriately serviced land with needed infrastructure and growth promoting land management policy are the urgent need of the time.

The current system of management of land records manually by a junior level functionary at district level in different units of measurement, complicated by conflicting hereditary claims are subject to exploitation and lead to long drawn out legal battles. Moreover, the land development rules, permitting very low FSI utilization even in costliest central business districts is ir-rational and far below the international norms. The fees for registration of property deeds is also unreasonably high and needs urgent rationalized.

The remedies would include ensuring that the Development Plans/Master Plans as well as Zonal Plans and Local Area Plans being made and updated regularly, so that adequate provision is made for the homeless as well as slum dwellers. Prepare Master Plan and Metropolitan Plans in consonance with the concerned District Plan and the State Regional Plan. Identifying city specific housing shortages and preparing city level Urban Housing & Habitat Action Plans for time bound implementation.

For supply & management of Land a National Land Policy should be developed for optimal use of available resources including enhanced supply of serviced land for sustainable development. Promote optimal utilization of land by innovative special incentives like relaxation of FAR for ensuring that 20-25% of the FAR are reserved for EWS/LIG units or issuance of Transferable Development Rights for clearance of transport corridors and availability of FAR in outer zones.

Consider for upward review, the presently authorized Floor Area Ratio (FAR) in line with international practice of making more efficient use of scarce urban land through construction of highrise buildings in consonance with densities specified in statutory Master Plans.

Promote planning and development of industrial estates along with appropriate labor housing colonies serviced by necessary basic services. Incorporate provisions of model building bye-laws prepared by Town & Country Planning Organization (TCPO) and National Building Code in their respective building bye-laws. Make suitable provisions in the Building Bye-laws for innovative energy conservation practices and mandatory rain water harvesting for specified owners of buildings. In order to ensure that 10 to 15% of land or 20 to 25% of FAR /FSI, whichever is greater, is earmarked in every new public/private housing project, appropriate spatial incentives to be developed by Urban Local Bodies (ULBs) and Development Authorities.

Encourage adoption of critical urban reforms relating to municipal laws, building bye-laws, simplification of legal and procedural frameworks, property title verification system and allied areas. Promote improvements for elimination of ambiguities in transaction of conveyance deeds, lease deeds, mortgages, gifts, partition deeds and allied property-related documents.

Promote in-situ slum up-gradation with partnership between the Central Government, State Governments, Urban Local Bodies, Banks/MFIs and potential beneficiaries.

Growth of a city beyond reasonable limits imposes unbearable strain on its services. City planners should be encouraged to lay down norms for development of urban sprawls and satellite townships. Reduction in the rate of in-migration into mega and metro cities is urgently needed through preparation of State/UT level regional Plans based on fast transport corridors for balanced growth.

Model bye-laws should be developed to promote the use of renewable energy sources particularly solar water heating systems in residential and commercial buildings. Promote appropriate ecological standards for protecting a healthy environment and providing a better quality of life in human settlements. Special attention will be paid to housing in coastal areas in order to promote fragile ecology. Further, adequate mangrove and allied plantations should be promoted in coastal areas especially those which are in high disaster-prone zones to avoid loss to life from natural disaster.

Develop Greenfield towns & integrated urban housing extensions of existing towns with complementary infrastructure or Special Economic Zones (SEZs) with both FDI and national investments in housing and infrastructure. Ensure that such fully integrated housing projects are well connected by MRTS corridors.

Enforce regulatory measures for planned development in an effective manner. Check the growth of unauthorized colonies, new slums, and unauthorized constructions, extensions of existing properties and commercialization of residential areas.

Promote Public-Private Partnerships in planning and funding based on potential of local level stakeholders. Develop suitable models for private sector's assembly of land and its development for housing in accordance with the Master Plan. Promote Residents' Welfare Associations (RWAs) for specified operation and maintenance of services within the boundaries of given colonies as well as utilize their assistance in developing an early warning system relating to encroachments.

Sustainability issues in development should be adequately taken care of, for instance by developing Green belts around cities with a view to maintaining the ecological balance. Suitable green recreational areas like zoo, lakes and gardens will be earmarked /developed for public visits in the Master Plan of each city/town. Water bodies shall be protected with special emphasis on keeping the flood plains of tropical rivers free from construction or encroachments. Efforts should be made to encourage cities/towns to keep a significant proportion of the total Master Plan area as 'green lungs of the city.

10.3.2.3 Lack of Financial Resources

The National Housing Bank (NHB) and NCAER estimate the market size of the underserved segment at over a 100 million households. Most of this population have limited or no access to affordable housing or housing finance despite being able to afford simple habitable units.

The International Finance Corporation (IFC), the private sector arm of the World Bank Group, however, has indicated that estimated investments to meet this housing requirement through 2012 as close to $80 billion. IFC is a leader in sustainable investment in emerging markets. IFC promotes private sector development and economic growth as a way to reduce poverty and improve people's lives.

A number of Housing Finance Companies and Microfinance institutions have shown interest in entering/expanding housing finance product offerings. However, such institutions have limited experience in managing long-term collateralized financial products and require substantial assistance in capacity building.

IFC provides advisory services by establishing partnerships with donors, governments, and the private sector to design and deliver technical assistance programs and advisory services that promote entrepreneurship, improve the investment climate, mobilize private sector investment and enhance the competitiveness of micro, small and medium enterprises.

The Working Group on Urban Housing pertaining to the 11th Plan has, however, made different assumptions on unit cost of construction of houses in million plus cities and other urban areas for estimat ning the investment required for overcoming the housing shortage. The total estimated investment for meeting the housing requirement up to 2012 was estimated by it to be of the order of Rs.3,61,318.10 crores. This consisting of Rs.1,47,195 crores for mitigating housing shortage at the beginning of 11th Plan and Rs.2,14,123.10 crores for new additions to be made during

the 11th Plan period (this includes construction of pucca houses & upgradation of semi-pucca and kutcha housing units).

The National Urban Housing and Habitat Policy issued by the Government of India recognizes the fact, that public sector resources alone cannot meet this high demand. It advocates for the involvement for multiple stakeholders and seeks to promote public private partnerships to meet this demand.

Some of the steps outlined in the National Urban Housing and Habitat Policy include:

A Secondary Mortgage Market should be promoted by the Reserve Bank of India (RBI)/National Housing Bank (NHB). This will enhance transparency and flexibility in the housing market.

Residential Mortgage Based Securitization (RMBS) need to be nurtured through NHB, Scheduled Banks and Housing Finance Corporation (HFCs).

A Model Rent Act should be prepared by the Government of India to promote rental housing on the principle that rent of a housing unit should be fixed by mutual agreement between the landlord and the tenant for a stipulated lease period prior to which, the tenant will not be allowed to be evicted and after the expiry of the said lease period, the tenant will not be permitted to continue in the said housing unit.

The feasibility of a National Shelter Fund to be set up under the control of the National Housing Bank for providing subsidy support to EWS/LIG housing would be examined in consultation with Ministry of Finance. The NHB will act as a refinance institution for the housing sector.

Efforts should be made to encourage Foreign Direct Investment (FDI) from International institutions, Non Resident Indians (NRIs) and Persons of Indian Origin (PIOs) in the housing and infrastructure sector in consultation with the Ministry of Finance and RBI.

In order to facilitate RMBS transactions, stamp duty on the instruments of RMBS across all states should be rationalized.

Rental housing provides a viable alternative option to the home seekers and the house providers alike. Incentives are to be provided for encouraging lending by financial institutions, HFIs and Banks for rental housing. Also, Companies and Employers will be encouraged to invest in the construction of rental housing for their employees.

Plan Funds and other assistance for housing and infrastructure should be dovetailed according to the Action Plan prepared and adopted by the States under their State Urban Housing and Habitat Policy (SUHHP). This would bring about synergies in the operation of various schemes and funding sources.

Micro-Finance Institutions (MFIs) to be promoted at Central and State levels to expedite the flow of finance to urban poor. In this regard, suitable mechanisms would be evolved to develop simplified norms for prudential rating and providing finance to MFIs. Adequate regulation of MFIs would be undertaken to ensure that MFIs do not burden the poor by charging usurious interest rates and their operations are kept transparent

10.3.2.4 Inadequate Fiscal Incentives

There is a lack of fiscal incentives to encourage housing sector in general. The sector does not get the preferred funding treatment from financial institutions for not being defined as an "Industry." The mortgage rates for the buyers are still high for the majority of families. Moreover, there are very limited personal taxation incentives for acquisition of such long–term fixed assets for self–occupation or renting.

It is therefore recommended that:

Suitable fiscal concessions for promoting the housing sector would need to be developed by the Ministry of Housing & Urban Poverty Alleviation in collaboration with the NHB and the Ministry of Finance.

Develop convergence between urban sector initiatives and financial sector reforms.

Central Government and Governments of States/UTs should promote innovative forms of public-private partnerships.

States/UTs are expected to develop 10 years perspective Housing Plans with emphasis on EWS and LIG sectors.

Special financial and spatial incentives need to be developed for inner-city slum redevelopment schemes.

The Central and State/UT Governments should develop special packages of incentives for in-situ slum up-gradation.

In order to facilitate RMBS transactions, stamp duty on the instruments of RMBS across all states should be rationalized.

10.3.2.5 Manpower Shortage

There is a tremendous shortage of supervisory, as also skilled manpower to meet the needs of the construction sector. Even the availability of unskilled labour, said to be available in plenty, is also prone to seasonal shortage during local festivals and harvesting times. Not just unskilled workers, there is a severe shortage of electricians, plumbers, fitters, carpenters, bar-benders, etc to work on big infrastructure projects and in the manufacturing sector.

The Indian construction industry, which is set to witness massive investments in the next five years, is facing an acute shortage of skilled workforce. The construction industry employs about 31 million people, second only to the agriculture sector the workforce requirement is about 5 million people every year over the next seven years to eight years to

sustain the current 8 percent growth rate. With only 10 million work force available in the country every year, the construction industry will face a daunting task in future in terms of recruiting and retaining skilled manpower.

According to a Planning Commission report, the economy needs to invest nearly $500 billion in infrastructure over the next five years. And, to implement such mammoth projects, the manpower required would be huge. In fact, by 2013, India's total manpower requirement would balloon to 92 million, of which, 57 million would be blue-collar workers, the report says. Where will industry find so many workers?

A study undertaken by the Association of Indian Chambers of Commerce and Industry (Assocham) has shown that the number of vocationally trained workers in India stands at just 5.3%, compared to 95.8% in Korea, 80.4% in Japan, 78.1% in Canada and 75.3% in Germany. The report points out that nearly 93% of workers (or, 353 million people) in India's un-organized sector do not get employment-related training. The country is likely to face a shortage of nearly 50 million skilled workers by 2010, it cautions.

The only way industry can beat the crunch is to start training its own manpower. Take, for instance, the case of L&T, which set up Construction Skills Training Institutes in five metros of the country. The institute trains people in essential skills like masonry, carpentry, bar-bending, steel-fixing, plumbing and electrical wiring. L&T personnel who work on construction sites are drafted and professionally trained to instruct workers at these institutes. They are assisted by other experienced workers who demonstrate field practices. The trained workers are eventually posted to different work sites. L&T has, so far, managed to train nearly 8,500 people.

The CIDC has since initiated a number of such workmen training institutions in different states to train and certify workmen and construction supervisors. With a pan India footprint, the programme is increasingly being patronized by both corporate and development sectors. The sustainability of the programme lies in the fact that it has now spread to 17 states and has benefited over 200,000 citizens with a target to train, test and certify over 500,000 people in 2008-09.

10.3.2.6 Technology & Materials – Urgent Need for Improvement

It is matter of great concern that the traditional burnt clay bricks continue to be the primary raw material for housing activity all over India. Brick making consumes fertile top soil from agricultural fields making these unfit for cultivation for many years. Moreover baking of bricks consumes energy and burning coal emits unhealthy smoke and carbon dioxide into the atmosphere.

It would be worthwhile to note, that the land wasted in the production of current annual requirement of 170 billion bricks deprives the country of food production that could feed 30 Lakh Indians for the whole

year. Moreover, production of these bricks consumes around 24 million tonnes of coal and the process emits 610.3 million tonnes of CO_2 into the atmosphere. We, as a nation need to continuously increase our food production to feed our growing millions. Therefore, we can ill afford to waste our precious agricultural land for brick making, since it is against our national interests. This amounts to meeting one basic need of shelter, while sacrificing the other basic requirement of food.

It is therefore imperative that we must look for and develop alternative materials, which are energy efficient and more environment–friendly. Fly Ash Clay bricks, Fly Ash lime Sand bricks are some of the alternatives being promoted by CBRI, NTPC, Fly Ash Mission, but with limited success. Fly Ash based Autoclaved Aerated Concrete (AAC) blocks, produced in big plants or more efficient and economical alternative of site produced Cellular Lightweight Concrete (CLC) blocks are gaining increased usage. The latter produced in an environment–friendly process need least intrinsic energy, offer superior thermal efficiency and lower water absorption than clay bricks, need lower raw material inputs and make productive use of fly ash – a waste industrial output. This seems to be one of the ideal futuristic material.

Even on the technology front, we continue to depend on manpower intensive traditional construction practices, which are slow and highly dependent on skilled labor input - a category already scarce in availability. Therefore, in order to be able to meet the huge housing shortage, we need to adopt partially or fully mechanised methodologies, which primarily need some unskilled labour inputs. Large scale application must be encouraged for semi-mechanised and mechanised systems like monolithic concrete/CLC construction using large area wall-, slab- forms or room sized forms or tunnel forms, with appropriate thermal insulation for external walls. These in-situ technologies are highly effective for mass scale application in earth-quake and tsunami prone conditions in India. These would provide faster, durable, economical dwellings deploying limited unskilled inputs. Use of prefabrication technology or ready-made building components in traditional constructions needs to be urgently encouraged. This can however be feasible, only if the establishments, producing and marketing such components are subject to similar labour laws and taxation structure as applicable to manufacture of clay bricks.

The proposed alternative technologies, which offer safe, durable, energy efficient, economical and environment–friendly green dwellings to our countrymen are recommended to be encouraged for wide scale application.

10.3.3 Government Energizes the Affordable Housing Sector/ Government Initiatives

10.3.3.1 Jawaharlal Nehru National Urban Renewal Mission (JNNURM)

Launched in 2005, this was a massive city modernization scheme.Its aim was to construct 10.5 million houses for urban poor in a million-plus population cities. Total 11,05,195 dwelling units are constructed and delivered while around 10% of the units are yet to be occupied. These units are predominantly located in remote areas which still lack physical and social infrastructure.

10.3.3.2 Integrated Housing and Slum Development Programme (IHSDP)

IHSDP was launched by the Government of India by merging the schemes of the National Slum Development Programme (NSDP) and Valmiki Ambedkar Awas Yojana (VAMBAY). The objective of the scheme is to provide adequate shelter and basic infrastructure facilities to the slum dwellers in urban areas. The scheme of IHSDP is funded in the ratio of 80:20 by the Government of India and State Government. As per guidelines of the scheme, the states/UTs may avail the central assistance for improvement/ upgradation/ relocation projects including upgradation/new construction of houses and infrastructural facilities like water supply, sewerage, storm water drains, community bath, paving of lanes, street lights, community toilet, etc.

10.3.3.3 Rajiv Awas Yojana (RAY)

This scheme focusses on integrated development of all the slums by providing water supply, sewerage, drainage, solid waste management, approach and internal roads, street lighting, community facilities such as community toilets and baths, informal sector markets, and livelihoods centers.As per MoHUA, 59,565 dwelling units are constructed while 18,657 units are unoccupied till Jan 2019.

10.3.3.4 Affordable Housing through Partnership

The mission is to partner with States/UTs/Cities and provide financial assistance to EWS at the rate of INR 10.5 lakh per house being built. The central government will assist if the project has more than 250 units and having at least 35% of housing for EWS under the affordable housing project, which can be a mix of EWS, LIG and MIG housing. Ministry of Housing and Urban Poverty Alleviation has prepared a "Draft Model Public-Private Partnership Policy for Affordable Housing in India" to facilitate the private sector's participation in affordable housing and help to fulfill the rising demand.

10.3.3.5 Subsidy for Beneficiary-led individual house construction

The EWS families, whoever is not eligible in any of the above components of the mission can avail this particular scheme of central

assistance of INR 10.5 lakh and should be part of the Housing for All Plan of Action (HFA PoA). The provided assistance can be used for the construction of new houses or to enhance existing houses with a minimum addition of 9 sq. mt. of carpet area to the existing house.

10.3.3.6 PMAY Urban Performance

Under PMAY (Urban), total 1,17,707 houses are approved, out of which only 35% are occupied, and 31% are in progress as of 2018. Affordable Housing in Partnership Scheme (AHP) total of 25,407 units was approved, with the cost of INR 1,398.41 Cr. Total of 1,41,848 units are approved, in which only 58% are completed, 26% are in progress and 16% yet to start construction.

BUDGET 2018-19 • Budget 2018-19 has further given impetus to affordable housing by creating a dedicated fund under which it will ensure that 37 lakh houses are built in urban areas by end of FY2018-19. AHP programme has shown good results in achieving the target as 92% of the dwelling units are completed, out of which only 12% of the units are not occupied and 3% units are yet to start from the total approved 24,141 units. RAY is working on moderate speed compared to AHP, as only 51% of units are completed against planned 1,17,707 units, in which only 35% are occupied by dweller.

Check your progress-1
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

1. What is housing?
2. State the housing schemes.

…………………………………………………………………………
…………………………………………………………………………
…………………………………………………………………………

10.4 URBANIZATION

10.4.1 The Concept of Urbanization

An increase in a population in cities and towns versus rural areas. Urbanization began during the industrial revolution, when workers moved towards manufacturing hubs in cities to obtain jobs in factories as agricultural jobs became less common.

The term Urbanization is well explained by Nsiah-Gyabaah as the change from a rural to an urban society which involves an augment in the

number of people in urban regions during a particular year. Likewise, Gooden argued urbanization as the immigration of people in huge numbers from rural to urban areas and this process happen due to the concentration of resources and facilities in towns and cities. Other theorists like, Reynolds (1989) characterized urbanization as the development of the population and cities, so that higher proportion of population lives in urban areas. Normally, urbanization is directly associated with innovation, industrialization, and the sociological process of good reason. Urbanization process had been started during the industrial revolution, when workforce moved towards manufacturing hubs in cities to get jobs in factories as agricultural jobs became less common. Theoretical studies have demonstrated that Urbanization is the result of social, economic and political developments that lead to urban concentration and expansion of big cities, changes in land use and revolution from rural to urban pattern of organization and governance. Urbanization is a process in which an increased proportion of society lives in cities and the suburbs of the cities. Historically, it has been strongly related with industrialization. Industrialization is processes that widely utilize inanimate sources of energy to improve human productivity.

Global urban population is growing at rapid rate from 17% in 1951 to 20% in 2001 and expected to increase 41% in 2020. It is observed that developing countries urbanize faster than industrialized nations because they have more issues of urbanizations. It has been documented in studies that Cities and towns operate as mechanisms for growth, often driving much of people's cultural, intellectual, educational and technological accomplishment and modernization. Though, in contemporary living style of people of new, low-density approaches to urban development results in better consumption of energy, resources, transport and land, in this manner raising greenhouse gas emissions and air and noise pollution to levels that often surpass the legal or suggested human protection limits. Overall consumption, energy use, water use and waste generation go along with an increasing number of urban families.

Urban environmental management, is also the big business of local governments, play major role to offer services; civil society, and promotes citizens health and its rights to provide hygienic, liveable environment. The private sector can increase the efficiency and effectiveness of service delivery. Currently, cities are taking on roles that expand far beyond the conventional provision of infrastructure and services.

When referring to the pre-industrial city, Wheatley (Wheatley, 1971) described urbanism as "that particular set of functionally integrated institutions which were first devised some 5,000 years ago to mediate the transformation of relatively egalitarian, inscriptive, kin-structured groups into socially stratified politically organized, territorially based societies". The stress on institutional change relates the growth of cities to a major socio-political reorganization of society, which he considers as a main constituent in the development of society. Correspondingly, Childe offers a listing of ten characteristics of an urban civilization. These may be

separated into five primary characteristics referring to primary changes in the organization of society and five secondary features indicative of the presence of the primary factors (Childe, 1951).

10.4.2 Major Causes of Urbanization

The following are the main causes of urbanization:

1. Industrial revolution: Industrial employment catches the attention of people from rural to urban areas. In the urban areas, people work in modern sector in the occupations that assist national economic development. This represents that the old agricultural economics is changing to a new non-agricultural economy. This is the trend, which will build a new modern society (Gugler 1997).
2. Emergence of large manufacturing centres.
3. Job opportunities: There are ample job opportunities in mega cities therefore village people or individuals from town frequently migrate to these areas.
4. Availability of transportation: Due to easy transport, people prefer to stay in big cities.
5. Migration: Migration is main cause for rapid growth of mega-cities. Migration has been going on over centuries and it is normal phenomenon. When considering urbanization rural-urban and urban-rural and rural-rural migrations are very important. Urban-urban migration means that people move from one city to another. People may move to the city because they are forced by poverty from rural community or they may be pulled by the magnetism of city lives. Combination of these push and pull factors can force people to migrate to cities (Gugler 1997).
6. Infrastructure facilities in the urban areas: Infrastructure has vital role in the process of urbanization in the development of countries. As agriculture becomes more fruitful, cities grow by absorbing workforce from rural areas. Industry and services increase and generate higher value-added jobs, and this led to economic growth. The geographic concentration of productive activities in cities creates agglomeration economies, which further raises productivity and growth. The augments income and demand for agricultural products in cities.
7. Growth of private sector.
8. **Economic opportunities:** It is general perception that living standard of urban area is superior as compared to village areas. People consider that more job opportunities and more jobs are offered in the city instead of rural area. Besides, the income also will be higher.
9. **Proper infrastructure and utilities:** In today's economy driven society, majority of nations in the world are focusing on the development of major cities as the centre of government and business. As such, the cities will be certainly equipped with a better infrastructure and utilities such as roads and transportation, water, electricity and others. Apart from that, the communication and

internet coverage also are good in the cities which are believed as one of the pulling factors of migration.

10. **Availability of public facilities:** To make smart city, metropolitan cities also offered better public facilities which are not there in rural areas. Since a variety of public facilities such as health and education are provided in the cities, people have more choices either to use public or private. Additionally, the provision of leisure area, postal services as well as police station and others are also provided to meet the needs of the urban community. In urban area, a greater variety of entertainment such as restaurants, movie theatres and theme parks attract more people to live in cities.
11. **Global perspective:** The urbanization progression and nature of the problems in more developed and less developed ones are very dissimilar. While in the framework of more developed countries, urbanization and city growth were necessary conditions for industrialization and modernization, it has become a risk to better living in the less developed countries because of the unpredictable growth of the cities, mainly of a few super cities. The speedy population growth in urban areas is due to migration of people from rural to urban and small cities to large ones are creating problems such as urban overcrowding, poor housing, and crowded transportation, lack of basic services, ill health, low educational status and high rate of joblessness. Such problems in the less developed countries may become heightened. It is necessary that studies should be undertaken on the patterns of urbanization observe the process so as to lessen its unfavourable consequences. India, the second most crowded country in the world has reached a state where urban problems have assumed to be serious.

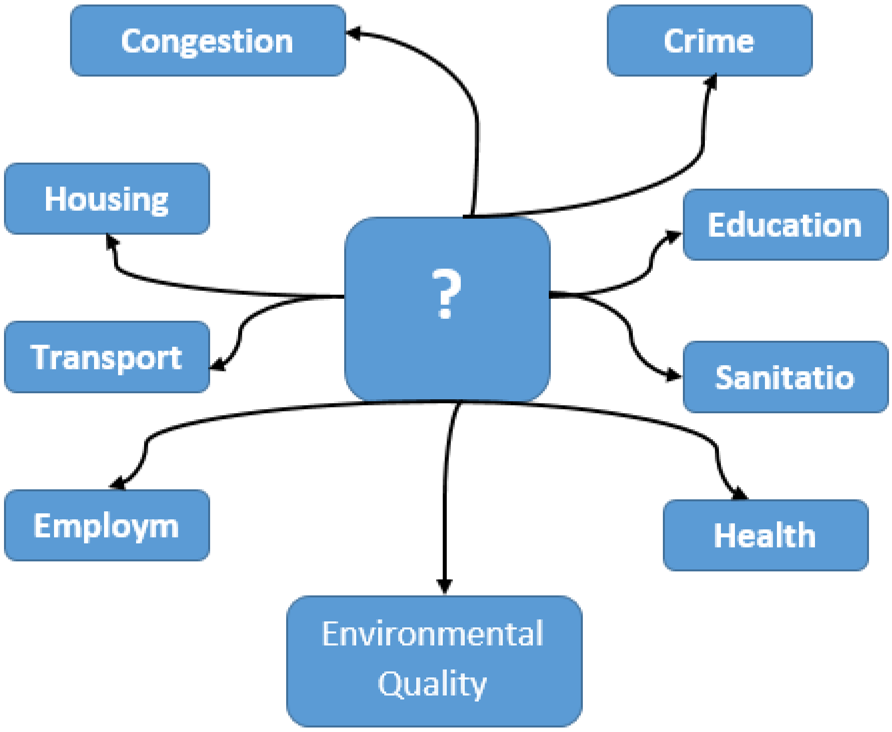
10.4.3 Urbanization Issues and Problem

Some scholars think that the process of urbanization will bring numerous benefits for monetary growth, expansion of business activities, social and cultural incorporation, resourceful services, as well as resources of utilization. Though, there are some issues occur due to the urbanization. These include:

10.4.3.1 Rapid rate of urbanization

It is observed that fast rate of urbanization which is increasing every year has needed more growth of new areas for housing, social amenities, commercial and other urban land uses. Though, the lack of clear urban limits has led to the formation of urban slump encroaching upon environmentally sensitive areas, major agricultural areas and areas which are not appropriate for development (TCPD, 2006). In addition, the high demand of land use at strategic areas also has led to land use variances. These situations led to various urbanization issues such as environmental pollution, traffic congestion, depletion of green areas and degradation in the quality of urban living.

Problems due to rapid rate of urbanization



10.3.3.2 Degradation of environmental quality

Due to urbanization, there is environmental degradation especially in the quality of water, air and noise. With the influx of more people in cities, there is great demand of facilities such as housing. Some unlawful factories and even houses which have a poor infrastructure, the waste from buildings are directly channelled to the nearest river or water resources which directly pollute the water. The domestic waste, industrial effluents and other wastes that were dumped directly to the river, degrade the water quality. Another after effects of rapid urbanization is the air pollution which has also increased due to emanation from motor vehicles, industrial development and use of non-environmental friendly fuel sources. The noise pollution is produced from the various human actions which also degrade the environment and ultimately affect the human health. The growth of population has generated a very high quantity of solid waste and there is pressure to provide a waste disposal place in the urban areas.

Inefficient transportation system: Urbanization created severe problem of transpiration. Due to movement of people into metropolitan cities, the number of vehicles on the road is increasing every year. Although various types of public transportation are provided in the cities but people in cities still prefer to drive private vehicles. This is due to the ineffective public transportation. The public transportation facilities are provided without referring to the need to integrate the different modes of transportation. Consequently it is difficult for the user to change the modes of transportation. Since the public transportation is not trustworthy, people usually travel from private vehicles which led to the severe problem of blockage in the cities. If any traffic jam happens, public transportation,

especially bus and taxi and private vehicles are trapped together and cannot move. It creates lot of problem for people.

10.4.3.3 Decline in quality of living for urban dwellers: Urbanization is major concern for management researchers because it decline in quality of living for urban inhabitants. As the metropolis becomes a developed city, the land value will also increase. The housing provision will focus more to fulfil the needs of the high income group. As such, there will be a problem in the provision of housing, especially for the middle and low class people. The supply of housing for the urban poor is still inadequate as the cost of these houses is very high to which low and middle income group cannot afford. The lack of housing provision for the low income group has led to the continuation of unlawful resident settlements in the city. These unlawful tenant settlements will certainly lack in proper infrastructure that will bring about many hindrances to the urban environment and create social problems such as child education, crime, drugs, delinquency and others. Besides housing problem for low income group, the process of urbanization has also increased the demand on infrastructure and utility which cannot be fulfilled from the existing facilities. The maintenance of drains and debris collection is incompetent which can raise other serious problems such as flash floods and poor public health. The reappearance of flash floods is due to the drainage system being unable to contain surface water run-off that has greatly increased with the higher intensity of urban activities.

10.4.3.4 Unsuccessful urban governance: The urban authority undergoes with multifaceted challenges to manage a city. The fast speed of urbanization is major challenges which need every party to be more focused in undertaking each and every responsibility in urban development. However, the involvement of several agencies and departments in urban management made it complicated to synchronize many actions and resultant, it affects the efficiency of those actions. Besides this, the local authority also deals with the different goals and interests of community groups which they need to fulfil. The local authority also needs to find solution for different social issues.

Cities are developed on two percent of the land's surface. Their inhabitant uses over three-quarters of the world's resources and release similar amounts of wastes. Urban wastes have local impacts but these are issues at global scale. The impacts of the cities are usually seen both locally and globally such as air pollution, city populations, as the major users of energy, cause both regional and worldwide pollution. These factors have adverse impact on health of the people, air quality and biosphere (Girardet 1996).

10.4.3.5 Miscellaneous Issues

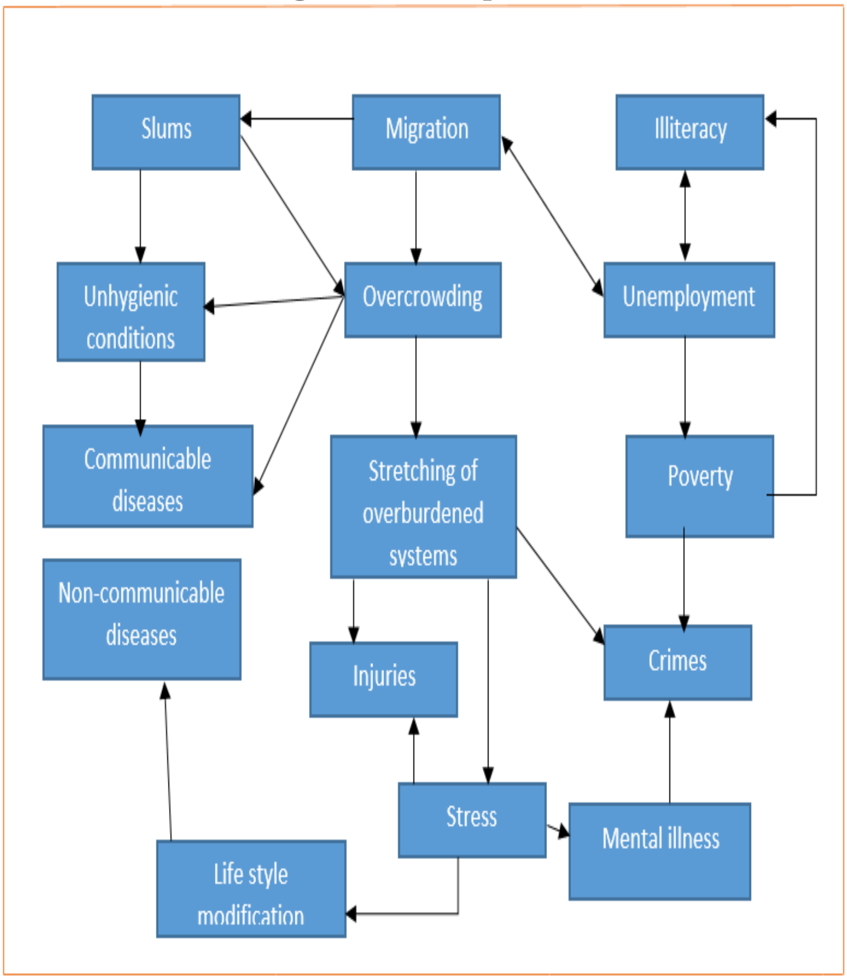
India is known for its rural population in the world with about 73 percent of its population living in rural villages. The growth of urban population as well as the speed of urbanization has been usually slow as compared to most of the other Asian countries. When evaluating

urbanizing process in Indian perspective, it is observed that major problems of urbanisation in this nation are Urban Sprawl, Overcrowding, Housing, Unemployment, Slums and Squatter Settlements, Transport, Water, Sewerage Problems, Trash Disposal, Urban Crimes, and Problem of Urban Pollution. While urbanisation has been a mechanism of economic, social and political progress, it can pose serious socio-economic problems. The absolute magnitude of the urban population, random and unplanned growth of urban areas, and lack of infrastructure are major issues in India due to urbanization. The fast growth of urban population both natural and through migration, has put immense pressure on public utilities like housing, sanitation, transport, water, electricity, health, and education.

Poverty, joblessness and under employment among the rural immigrant, beggary, thefts, dacoities, burglary and other social sins go wild. Urban slump is encroaching the valuable agricultural land. According to the statistical reports in 2001, the urban inhabitants of India were more than 285 million. It is estimated that by 2030, more than 50 per cent of India's population is expected to live in urban areas. Numerous problems need to be emphasized.

Urban sprawl or real development of the cities, both in population and geographical area, of rapidly increasing cities is the major cause of urban troubles. In most cities, the financial support is unable to deal with the problems created by their expansion. Huge immigration from rural areas as well as from small towns into large cities has occurred almost consistently and as a result the size of the city is increased. Historical records signify that initial large flow of migration from rural to urban areas was during the "depression" of late 1930s when people moved for searching employment. Afterwards during the decade 1941-51, another a million persons migrated to urban areas in response to period of war industrialisation and division of the country in 1947. During 1991-2001, more than 20 million people migrated to urban areas. It is commonly observed that such big cities attracted to majority of people to get employment opportunities and live in modern style. Such hyper urbanisation leads to increased cities sizes which challenge imagination. Delhi, Mumbai, Kolkata, Chennai, Bangalore are examples of urban slump due to huge migration of people from the nearby places.

Migration consequences:



Overcrowding is a situation in which large number of people lives in too little space. Overcrowding is a consistent result of over-population in urban areas. It is obviously expected that cities are increasing their size due to massive movement of people from undeveloped ar-eas but it squeezed in a small space due to overcrowding.

Housing: It is another intense problem due to urbanization in India. Overcrowding leads to a constant problem of scarcity of houses in urban areas. This problem is particularly more severe in those urban areas where there is large invasion of jobless or underemployed immigrants who could not find place to live when they come in cities and towns from the nearby areas. The major factors for housing problems are lack of building materials and financial resources, insufficient expansion of public utilities into sub-urban areas, poverty and unemployment of urban immigrants, strong caste and family ties and lack of enough transportation to sub-urban areas where most of the available land for new construction is to be found.

Unemployment: The problem of joblessness is also serious as the problem of housing. Urban unemployment in India is estimated at 15 to 25 per cent of the labour force. This percentage is even higher among the educated people. It is approximate that about half of all knowledgeable urban unemployed youth are living in four metropolitan cities such as in Delhi,

Mumbai, Kolkata, and Chennai. Additionally, although urban incomes are higher than the rural incomes, they are awfully low because of high cost of living in urban areas. Major causes of urban unemployment are the huge relocation of people from rural to urban areas.

Slums and Squatter Settlements: The natural development of unchecked, unexpected and random growth of urban areas is the growth and spread of slums and unlawful resident settlements which present a prominent feature in the environmental structure of Indian cities, particularly of urban centres. The fast urbanisation in combination with industrialisation has resulted in the enlargement of slums. The explosion of slums occurs due to many factors, such as, the lack of developed land for housing, the high prices of land beyond the reach of urban poor, a large influx of rural migrants to the cities in search of jobs.

Transport: Urbanization poses major challenge to transport system. With traffic blockage, almost all cities and towns of India are suffering from severe form of transport problem. Transport problem increases and becomes more complex as the town grows in dimension. With its growth, the town performs varied and complex functions and more people move to work or shop.

Water: Water is one of the most essential elements of nature to maintain life and right from the beginning of urban civilisation. However, supply of water started falling short of demand as the cities grew in size and number.

Sewerage Problems: Urban centres in India are almost consistently beset with inadequate sewage facilities. Resource crisis faced by the municipalities and illicit growth of the cities are two major causes of this pitiable state of affairs. Most cities do not have proper arrangements for treating the sewerage waste and it is drained into a nearly river or in sea as in Mumbai, Kolkata and Chennai and these activities pollute the water bodies.

Trash Disposal: Urbanization pushed Indian cities to grow in number and size and as a result people have to face the problem of trash disposal which is in alarming stage. Enormous quantities of garbage produced by Indian cities cause a serious health problem. Most cites do not have proper arrangements for garbage disposal and the existing landfills are full to the edge. These landfills are breeding grounds of disease and countless poisons leaking into their environs. Wastes putrefy in the open inviting disease carrying flies and rats and a filthy, poisonous liquid, called leachate, which leaks out from below and contaminates ground water. People who live near the decomposing garbage and raw sewage get victims to several diseases such as dysentery, malaria, plague, jaundice, diarrhoea, and typhoid.

Health problem due to urbanization: Factors affecting health in slums are Economic conditions, Social conditions, Living environment, Access and use of public health care services, Hidden/Unlisted slums and Rapid mobility. Environmental problems can cause many other problems such as Poor air quality that can produce asthma and allergies or contribute to

physical inactivity, an impure water supply can cause the spread of infectious diseases through the water supply or through food such as waterborne and food borne diseases, climates changes can cause deaths from severe heat or cold , noise can cause sleep disturbances, and hence poor performance at work and in school, Lead poisoning leading to developmental and behaviour problems, Second-hand smoke and exposure to carcinogens can cause cancer. In general, poor environmental quality contributes to 25â€“33% of global ill health. Physical, mental, and social health is affected by living conditions. There are numerous examples that impact on human living such as lead exposure, noise, asbestos, mould growth, crowding, respiratory disease, and spread of infectious diseases, accidents, and mental illness. Health impacts of inadequate housing conditions are an intricate issue involving variety of exposures (physical, chemical, biological, building, and social factors) and various health outcomes such as asthma and allergies, respiratory diseases, cardiovascular effects, injuries, poisoning, mental illnesses. Issues of overcrowding, lack of resources, poverty, unemployment, and lack of education and social services can lead to numerous many social problems for example crime, violence, drug use, high school drop-out rates, and mental health problems.

Urban Crimes: In developed cities of India, people get connected with different types of individuals who do not have similarity with one another. The problem of crimes increases with the increase in urbanisation. In fact the increasing trend in urban crimes tends to upset peace and tranquillity of the cities and make them insecure to live in mainly for the women. The problem of urban crime is becoming more complicated in current situation because criminals often get shelter from politicians, bureaucrats and leaders of the urban society. Dutt and Venugopal (1983) stated that violent urban crimes such as rape, murder, kidnapping, dacoity, robbery are more prominent in the northern-central parts of the nation. Even the economic crimes such as theft, cheating, breach of trust are concentrated in the north-central region. Poverty related crimes are prevalent in the cities of Patna, Darbhanga, Gaya and Munger. This may be due to poverty existing in this area.

Problem of Urban Pollution: Rising urbanisation in present situation led to develop industries and transport systems out of proportion. These developments are mainly responsible for contamination of environment, particularly the urban surroundings. Urban pollution is mainly the collection of impurities created by cities which would certainly shock city dwellers. It includes Air, water, ground the entire environment. Air pollution has dangerous consequences which emerge due to urbanization. Cities are the source of several dangerous gases, particularly vehicles like passenger cars, Lorries, buses which generate carbon dioxide (CO2), carbon monoxide (CO), sulphur dioxide (SO2), nitrous oxides (Nox), benzene, ozone in addition to fine particles released by diesel motors which create a serious threat to human health. Heating installations use fossil fuels which also contaminate the air of urban centres. However, in numerous urban agglomerations, the main source of the worsening of air quality is from industrial facilities which emit veritable poisons into the air,

which is then inhaled by riverside dwellers. Water is also source of pollution in urban areas. Since earlier times, cities are attracting millions of rural residents to their recognizable shores. Each of these individuals has required water to live, and consume for other basic needs. Cities under continuous development must increase their water resources and their water treatment capacities. In many countries, this has created nearly insoluble problems and millions of human beings are not assured daily access to potable water. As regards wastewater, the lack of effective collection and treatment facilities means that wastewater is often quite simply dumped back into Nature, often into the ocean, which creates severe and long lasting pollution problems.

Check your progress-2
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

3. What is Urbanization?
4. List out the causes of Urbanization.

…………………………………………………………………………
…………………………………………………………………………………
…………………………………………………………………………………

10.5 POVERTY AND IMPACT OF RURAL POVERTY

10.5.1 The Concept of Poverty

Poverty is a plague as it is prevalent in almost all countries in the world and it has many faces and dimensions. Therefore it is difficult to define the concept poverty in precise. Poverty is always defined according to the conventions of society in which it occurs. But in the recent years, the concept of poverty has been refined and made more comprehensive. The New World requires better and more scientific ways to assess the concept of poverty in the society. Now its multidimensional aspect is recognized and uses a multidisciplinary approach to assess poverty. Poverty is not simply a social phenomenon but also include economic, political, historical, geographical and cultural aspects.

Various attempts have been made by societies to define poverty. In human terms poverty means little to eat and wear, and in economic terms the poverty means the inability to attain a minimum standard of living. It is natural to view poverty as the failure to meet the basic requirements to maintain a minimum standard of living. This minimum standard of living may vary from society to society. While biological requirement and nutritional norms provide the most elementary concept of a minimum standard of living, modern understanding of poverty requires other factors

such as school enrolment, infant mortality, immunization, malnutrition, women empowerment, overall standard of living, asset holding etc.

Poverty can be defined as a social phenomenon in which a section of the society is unable to fulfill even its basic necessities of life. In India the generally accepted definition of poverty emphasizes minimum level of living rather than a reasonable level of living. In economics there are two important classification of poverty; Absolute Poverty' and 'Relative Poverty'.

10.5.2 Poverty Line

Poverty line is the most widely used measure for assessing poverty. Under this method, people are counted as poor when their measured standard of living is below a minimum acceptable level-known as Poverty Line. The poverty line in India is defined as 'the level of private consumption expenditure, which ensures a food basket that would supply the required amount of calories'. Actually in India the Planning Commission estimates the poverty on the basis of Calorie intake. By considering age, sex, activity etc., Indian Council of Medical Research (ICMR) proposes 2400 calorie intake for the rural person per day and 2100 calorie per person per day in urban. The calorie requirements in the rural areas is higher because people engaged in heavy work more in rural areas than in urban areas.

10.5.3 Causes/impact of Rural Poverty in India

Poverty is not caused by any single reason. It is the outcome of the interaction of several factors; economic, non- economic, political, social, cultural, geographical etc.

10.5.3.1 Underdevelopment

The most important cause for poverty is the underdevelopment of the economy. Due to underdevelopment a large proportion of the people have go without even the basic necessities of life. With the low national income and percapita income the country cannot increase its aggregate consumption and investment. Hence the standard of living is also so low among the people. Even though there is much improvement in the development of the country after independence still we want to go a lot.

10.5.3.2. Inequality

The second important cause of poverty in India is inequality in income and wealth. Even the New Economic policies could not reduce the depth of inequality in India. Instead there is increase in inequality among the people.

10.5.3.3. Inadequate growth rate

In the early years of planning the growth rate of Indian economy is not high enough to check the problem of poverty. Even though economy

railed in a high growth path in the mid of 2000 onwards the benefits are not trickle down to the poor sections of the society. Still the gap between rich and poor is increasing.

10.5.3.4. Large population

Even though the growth rate of population is coming down still the size of it is very large. Therefore it is not capable to implement the poverty alleviation programmes successfully.

10.5.3.5 Unemployment

Another major cause for the growth of poverty is unemployment. The problem of unemployment is still so acute in the economy. Thus increasing unemployment and underemployment accentuate poverty.

10.5.3.6. Poor performance of agriculture sector

Still Indian agriculture is carried on largely with primitive techniques. High dependency on rain, small and scattered holdings, lack of inputs, exploitative land tenure system, competition from foreign markets, lack of storage and marketing facilities etc. are responsive to the poor performance of agriculture sector even after the Green Revolution.

10.5.3.7. Poor performance of industrial sector

In spite of much improvement in line with development of modern industries still performance is not up to the mark. Lack of dynamic entrepreneurs, lack of competitiveness, lack of skilled and trained workers, inadequate finance, irregular supply of power and raw materials, poor transport and methods of production etc. leads to slow industrialization of the country.

10.5.3.8. Inflation

Rise in price is an alarming problem to the economy. It is the poor who suffered a lot due to inflation. When prices are high the purchasing power of money falls and leads to impoverishment of the poor sections of the country.

10.5.3.9. Social factors

It is agreed that the poverty in India is the outcome of social factors. It includes caste system, joint family system, law of inheritance, lack of initiative and entrepreneurship etc. India is also poor in social overheads like education, health, medical facilities, illiteracy etc. The attitudes and aspirations of the people are not conducive to economic growth and development.

10.5.3.10. Political factors

Even after India escaped from the yoke of British exploitative administration still the political set up is not that much efficient to solve the problem of poverty. It is true that various programmes are initiated under five year plans. The Fifth Five Year Plan raised the slogan “Garibi Hatao” but still the poverty alleviation is a nightmare to Indian policy makers.

Thus the poverty in India is happened due to various reasons. Regional disparities, lack of investment, lack of proper implementation of

public distributive system, lack of vocational training and education, migration of rural youth to cities etc. have also contributed to poverty in India.

10.5.4 Remedial Measures

Poverty is a tragedy not only for the individuals but also for the economy at large. As a result of this the remedial measures to poverty is emphasized. From the experiences of the economy we can suggest the following to alleviate poverty.

10.5.4.1 Rapid Economic Growth

Fast economic growth is a necessary condition for poverty alleviation programme for the following reasons: It changes the low income agricultural set up, helps to strengthen the redistributive activities of the government, made a radical change in production and distribution process, create more employment opportunities etc. Even there is the possibility of trickledown effect to economic growth.

10.5.4.2 Accelerate agricultural growth

No doubt that when there is agricultural growth it reduces the burden of poverty because majority of poor are lived with agriculture sector. So steps should be taken to solve the problems of small and marginal farmers.

10.5.4.3 Accelerate industrial growth

The industrial development will create more income and employment opportunities to the people. Through this the depth of poverty can be reduced.

10.5.4.4 Development of small- scale and cottage industries

In Indian economy small- scale and cottage industries have played a crucial role. This sector which being labour intensive, create more employment opportunities and help in the removal of poverty.

10.6.4.5 Land reforms

Land reforms as poverty alleviation measures aimed to break the old feudal socioeconomic structure of land ownership. It aims to eliminate exploitation by providing security of tenure and regulation of rent. It also aims to bring direct contact between the state and the tiller and give social economic status of the landless by distributive measures.

10.6.4.6 Better Public Distributive System

Poverty can be reduced if people are ensured with essential commodities at fair prices. Therefore the government should establish a wide network of fair price shops to provide the essential commodities.

10.6.4.7 Control Population

Unless the population is not reduced, the additions to wealth production will be eaten up by the fresh torrent of babies. Therefore the planners should aim at the family planning measures to bring down the birth in the country.

10.5.4.8 Provision of Common Services and social Security

The government should spend for the provision of free common services like primary education, medical aid, potable drinking water, housing and other facilities to the people. This will increase their real consumption and make them feel better off and hence reduce the

poverty.

10.5.4.9 Improve the Status of the Women

Gender equality can help to reduce poverty and encourage growth in variety of ways. Women are provided with direct access to institutional credit, direct membership in cooperatives, setting up of women organization etc.

10.5.4.10 Good Administrative Setup

Above all the success of any programme primarily depends on the effective working of the administrative machinery.

10.5.5 Brief Review of Poverty Alleviation Programmes

Beginning with the launch of Integrated Rural Development Programme (IRDP, 1978) in the Sixth Five Year Plan, a number of PAPs have been formulated and implemented; many of them are have been restructured and formulated fresh from time to time . Among these PAPs the more important have been:

(a) Training of Rural Youth for Self-Employment (TRYSEM, 1979)
(b) National Rural Employment Programme (NREP, 1980)
(c) Rural Landless Employment Guarantee Programme (RLEGP, 1983)
(d) Million Wells Scheme (MWS, 1988)
(e) Nehru Rozgar Yojana (NRY, 1989).It is for the urban poor people.
(f) Jawahar Rozgar Yojana (JRY, 1989).NREGP and RLEGP are merged in this in 1989.
(g) Development of Women and Children in Rural Areas (DWCRA, 1992)
(h) Employment Assurance Scheme (EAS, 1993)
(i) Prime Minister Rozgar Yojana (PMRY, 1994)
(j) Prime Minister's Integrated Urban Poverty Eradication Programmes (PMIUPEP,1995)

Most of these programmes have been recently redesigned and restructured to improve their efficacy or impact on the poor. The important PAPs, presently in operation are;

- ✓ Self Employment Programme: Swarnjayanthi Gram Swarozgar Yojana (SGSY, 1999). This replaces IRDP, TRYSEM, DWCRA, SITRA, GKY and MWS and work for rural poor.
- ✓ Wage Employment Programme: National Food for Work Programme (NFWP, 2004). It intensifies the generation of supplementary wage employment.
- ✓ Sampoorna Grameen Rozgar Yojana (SGRY, 2001). Rural Employment Generation Programme (REGP, 1995) was merged in SGRY in 20010.SGRY provide additional wage employment in the rural areas. Now this programme is entirely subsumed in NREGS with effect from April, 1, 2008.
- ✓ National Social Assistance Programme (NSAP, 1995). It provides social assistance to the rural poor. Urban Employment and Anti-poverty Programme: Prime Minister Rozgar Yojana (PMRY, 1993)

- ✓ Swarna Jayanti Shahari Rozgar Yojana (Golden Jubilee Urban Employment Scheme, 1997). This scheme integrates three PAPs for urban areas, viz.NRY, PMIUPEP and Urban Basic Services for the poor.

Check your progress-3
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

5. What is Poverty?
6. Enumerate the impact of rural poverty

…………………………………………………………………………
…………………………………………………………………………………
…………………………………………………………………………………

10.7 LET US SUM UP

In this unit, you have learnt about the concept, meaning and definition of ecology, nature and scope of ecology and importance of studying ecology. Thus, the introduction unit of ecology would have brought you closer to know the concept, nature and scope of ecology and usage in your educational career. This content might play a very important role in your service.

10.8 UNIT- END- EXERCISES

1. Describe the issues of urbanization.
2. Explain the causes of poverty.
3. Describe the remedial measures of poverty.

10.9 ANSWER TO CHECK YOUR PROGRESS

1. Housing, or more generally living spaces, refers to the construction and assigned usage of houses or buildings collectively, for the purpose of sheltering people — the planning or provision delivered by an authority, with related meanings. The social issue is of ensuring that members of society have a home in which to live, whether this is a house, or some other kind of dwelling, lodging, or shelter. Many governments have one or more housing authorities, sometimes also called a housing ministry, or housing department.
2. Jawaharlal Nehru National Urban Renewal Mission (JNNURM)

Integrated Housing and Slum Development Programme (IHSDP)
Rajiv Awas Yojana (RAY)
Affordable Housing through Partnership
Subsidy for Beneficiary-led individual house construction
PMAY Urban Performance

3. An increase in a population in cities and towns versus rural areas. Urbanization began during the industrial revolution, when workers moved towards manufacturing hubs in cities to obtain jobs in factories as agricultural jobs became less common.

The term Urbanization is well explained by Nsiah-Gyabaah as the change from a rural to an urban society which involves an augment in the number of people in urban regions during a particular year. Likewise, Gooden argued urbanization as the immigration of people in huge numbers from rural to urban areas and this process happen due to the concentration of resources and facilities in towns and cities. Other theorists like, Reynolds (1989) characterized urbanization as the development of the population and cities, so that higher proportion of population lives in urban areas. Normally, urbanization is directly associated with innovation, industrialization, and the sociological process of good reason. Urbanization process had been started during the industrial revolution, when workforce moved towards manufacturing hubs in cities to get jobs in factories as agricultural jobs became less common. Theoretical studies have demonstrated that Urbanization is the result of social, economic and political developments that lead to urban concentration and expansion of big cities, changes in land use and revolution from rural to urban pattern of organization and governance. Urbanization is a process in which an increased proportion of society lives in cities and the suburbs of the cities. Historically, it has been strongly related with industrialization. Industrialization is processes that widely utilize inanimate sources of energy to improve human productivity.

4. The main causes of urbanization

Industrial revolution: Industrial employment catches the attention of people from rural to urban areas. In the urban areas, people work in modern sector in the occupations that assist national economic development. This represents that the old agricultural economics is changing to a new non-agricultural economy. This is the trend, which will build a new modern society (Gugler 1997).

Emergence of large manufacturing centres.

Job opportunities: There are ample job opportunities in mega cities therefore village people or individuals from town frequently migrate to these areas.

Availability of transportation: Due to easy transport, people prefer to stay in big cities.

Migration: Migration is main cause for rapid growth of mega-cities. Migration has been going on over centuries and it is normal phenomenon. When considering urbanization rural-urban and urban-rural and rural-rural migrations are very important. Urban-urban migration means that people move from one city to another. People may move to the city because they are forced by poverty from rural community or they may be pulled by the magnetism of city lives. Combination of these push and pull factors can force people to migrate to cities (Gugler 1997).

Infrastructure facilities in the urban areas: Infrastructure has vital role in the process of urbanization in the development of countries. As agriculture becomes more fruitful, cities grow by absorbing workforce from rural areas. Industry and services increase and generate higher value-added jobs, and this led to economic growth. The geographic concentration of productive activities in cities creates agglomeration economies, which further raises productivity and growth. The augments income and demand for agricultural products in cities. Growth of private sector.

Economic opportunities: It is general perception that living standard of urban area is superior as compared to village areas. People consider that more job opportunities and more jobs are offered in the city instead of rural area. Besides, the income also will be higher.

Proper infrastructure and utilities: In today's economy driven society, majority of nations in the world are focusing on the development of major cities as the centre of government and business. As such, the cities will be certainly equipped with a better infrastructure and utilities such as roads and transportation, water, electricity and others. Apart from that, the communication and internet coverage also are good in the cities which are believed as one of the pulling factors of migration.

Availability of public facilities: To make smart city, metropolitan cities also offered better public facilities which are not there in rural areas. Since a variety of public facilities such as health and education are provided in the cities, people have more choices either to use public or private. Additionally, the provision of leisure area, postal services as well as police station and others are also provided to meet the needs of the urban community. In urban area, a greater variety of entertainment such as restaurants, movie theatres and theme parks attract more people to live in cities.

Global perspective: The urbanization progression and nature of the problems in more developed and less developed ones are very dissimilar.

5. Poverty is a plague as it is prevalent in almost all countries in the world and it has many faces and dimensions. Therefore it is difficult to define the concept poverty in precise. Poverty is always defined according to the conventions of society in which it occurs. But in the recent years, the concept of poverty has been refined and made more comprehensive. The New World requires better and more scientific ways to assess the concept of poverty in the society. Now its multidimensional aspect is recognized and uses a multidisciplinary approach to assess poverty. Poverty is not simply a social phenomenon but also include economic, political, historical, geographical and cultural aspects
6. **Underdevelopment**
   The most important cause for poverty is the underdevelopment of the economy.
   Inequality
   Inadequate growth rate
   Large population Even though the growth rate of population is coming down still the size of it is very large. Therefore it is not capable to implement the poverty alleviation programmes successfully.
   Unemployment
   Poor performance of agriculture sector Still Indian agriculture is carried on largely with primitive techniques. High dependency on rain, small and scattered holdings, lack of inputs, exploitative land tenure system, competition from foreign markets, lack of storage and marketing facilities etc. are responsive to the poor performance of agriculture sector even after the Green Revolution.

   Poor performance of industrial sector In spite of much improvement in line with development of modern industries still performance is not up to the mark. Lack of dynamic entrepreneurs, lack of competitiveness, lack of skilled and trained workers, inadequate finance, irregular supply of power and raw materials, poor transport and methods of production etc. leads to slow industrialization of the country.

   Inflation Rise in price is an alarming problem to the economy. It is the poor who suffered a lot due to inflation. When prices are high the purchasing power of money falls and leads to impoverishment of the poor sections of the country.

Social factors It is agreed that the poverty in India is the outcome of social factors. It includes caste system, joint family system, law of inheritance, lack of initiative and entrepreneurship etc. India is also poor in social overheads like education, health, medical facilities, illiteracy etc. The attitudes and aspirations of the people are not conducive to economic growth and development.

olitical factors Even after India escaped from the yoke of British exploitative administration still the political set up is not that much efficient to solve the problem of poverty. It is true that various programmes are initiated under five year plans. The Fifth Five Year Plan raised the slogan "Garibi Hatao" but still the poverty alleviation is a nightmare to Indian policy makers.

10.10 SUGGESTED READINGS

1. Planning Commission, GoI. Working Sub-Group on Infrastructure. Infrastructure Funding Requirements and its Sources over the implementation
2. period of the Twelfth Five Year Plan (2012–2017). Available at: http://planningcommission.gov.in/aboutus/committee/wg_sub_infrastructure.pdf
3. McKinsey Global Institute. India's Urban Awakening: Building Inclusive Cities, Sustaining Economic Growth. April, 2010.
4. 10. HPEC. Report on Indian Urban Infrastructure and Services. March, 20110. Available at: http://icrier.org/pdf/FinalReport-hpec.pdf.
5. World Bank. Urbanization beyond Municipal Boundaries: Nurturing Metropolitan Economies and Connecting Peri-Urban Areas in India. 2013.
6. Washington, DC: World Bank. Available at: https://openknowledge.worldbank.org/handle/10986/13105
7. CII-KPMG. Ease of Doing Business in India. May, 2014. Delhi: CII. Available at: https://www.kpmg.com/IN/en/IssuesAndInsights/
8. ArticlesPublications/Documents/KPMG-CII-Ease-of-doing-business-in-India.pdf
9. 13. MoUD, GoI website: http://moud.gov.in/constiution
10. 14. MoUD, GoI, and Ministry of Urban Employment and Poverty Alleviation, GoI. Jawaharlal Nehru National Urban Renewal Mission. 20110. Available at:
11. http://jnnurm.nic.in/wp-content/uploads/2011/01/UIGOverview.pdf
12. HPEC. Report on Indian Urban Infrastructure and Services. March, 20110. Available at: http://icrier.org/pdf/FinalReport-hpec.pdf
13. 15. Sinha, S. "Land Bill in Lok Sabha; proposes compensation payment within 3 months". 7 September 20110. New Delhi: The Hindu Business Line.

14. Available at: http://www.thehindubusinessline.com/industry-and-economy/article2432609.ece
15. Ramesh, J. "FAQ By Jairam Ramesh on the Land Bill". 29 August 2013. Available at: http://www.tehelka.com/land-acquisition-bill-2013/
16. 16. Make in India website: http://www.makeinindia.com/
17. 17. MoUD, GoI. Swachh Bharat Mission. Available at: http://moud.gov.in/SwachchBharat (also: http://swachhbharaturban.gov.in/)
18. Ministry of Home Affairs, GoI. Census of India 2011, Provisional Population Trends. "Some Concepts and Definitions". Available at: http://
19. censusindia.gov.in/2011-prov-results/paper2/data_files/kerala/13-concept-34.pdf
20. Ministry of Finance, GoI. Economic Survey 2014–15. Volume-II. Available at: http://indiabudget.nic.in/survey.asp
21. The Times of India. "Swachh Bharat Abhiyan: PM Narendra Modi to wield broom to give India a new image". 2 October 2014. Available at: http://
22. Timesofindia.indiatimes.com/india/Swachh-Bharat-Abhiyan-PM-Narendra-Modi-to-wield-broom-to-give-India-a-new-image/articleshow/44039120.
23. The Economic Times. "Swachh Bharat campaign should become mass movement: Narendra Modi". 19 September 2014.
24. Available at: http://articles.economictimes.indiatimes.com/2014-09-19/news/54109104_1_prime-minister-narendra-modi-mass-movement-cleanindia
25. Singh, T. "India to Build 24 Green Cities in Delhi-Mumbai Industrial Corridor". Inhabitat. Available at: http://inhabitat.com/india-to-build-24-greencities-in-delhi-mumbai-industrial-corridor/dmic/
26. Desai, AR (1978) Rural Sociology in India. Popular Prakashan, Bombay.
27. Sharan, AK (1999) Social Psychology. Commonwealth Publishers. New Delhi
28. Desai, A.R. 1959 Social Background of Indian Nationalism. Popular Prakashan, Bombay.
29. Dube, S.C. 1955. Indian Village. Cornell University Press: New York
30. Bertrand, Alvin Lee, ed. Rural sociology: an analysis of contemporary rural life. McGraw-Hill, 1958.
31. Gillette, John Morris. Constructive rural sociology. Sturgis & Walton Company, 1915.
32. Mukherjee, Ramkrishna 1979. Sociology of Indian Sociology. Allied Publishers, Bombay.

33. Singh, Yogendra. 1979. "On the History of Sociology in India" in Mohini Mullick (ed.) Social Enquiry: Goals and Approaches. Manohar, Delhi.
34. Srinivas, M.N. and Panini 1986. "The Development of Sociology and Social Anthropology in India" in T.K. Oommen & Partha N. Mukherji (eds) Indian Sociology Reflections of Introspections, Popular Prakashan, Bombay. Emergence of Sociology in India.

UNIT- XI

SOCIAL IMPACT ASSESSMENT OF ENVIRONMENTAL ISSUES

Structure

11.1 INTRODUCTION

The objective of social impact assessment (SIA) is to ensure that development maximises its benefits and minimises its costs, especially those costs borne by people (including those in other places and in the future). Costs and benefits may not be measurable or quantifiable and are often not adequately taken into account by decision-makers, regulatory authorities and developers. By identifying impacts in advance: (1) better decisions can be made about which interventions should proceed and how they should proceed; and (2) mitigation measures can be implemented to minimise the harm and maximise the benefits from a specific planned intervention or related activity.

An important feature of SIA is the professional value system held by its practitioners. In addition to a commitment to sustainability and to scientific integrity, such a value system includes an ethic that advocates openness and accountability, fairness and equity, and defends human rights. The role of SIA goes far beyond the ex-ante (in advance) prediction of adverse impacts and the determination of who wins and who loses. SIA also encompasses: empowerment of local people; enhancement of the position of women, minority groups and other disadvantaged or marginalised members of society; development of capacity building; alleviation of all forms of dependency; increase in equity; and a focus on poverty reduction.

SIA complements the economic and technical models that characterise the thinking of many development professionals and agencies. SIA can be undertaken in different contexts and for different purposes. This creates difficulties in defining or evaluating it. The nature of an SIA done on behalf of a multinational corporation as part of that company's internal procedures may be very different to an SIA undertaken by a consultant in compliance with regulatory or funding agency requirements, or an SIA undertaken by a development agency interested in ensuring best value for their country's development assistance. These, in turn, may be very different to an SIA undertaken by staff or students at a local university on behalf of the local community, or an SIA undertaken by the local community itself. Each of these applications of SIA is worthwhile, and none should pretend to be the definitive statement. Evaluation of an SIA needs to consider its intended purpose.

11.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Acquires knowledge about Social Impact Assessment
- ✓ Understand the concept development, displacement, relocation
- ✓ Explain the environmental problems

1.3 STAGES OF SOCIAL/ENVIRONMENTAL IMPACT ASSESSMENT

Although legislation and practice vary around the world, the fundamental components of an EIA would necessarily involve the following stages

1.3.1 stages of Impact Assessment

1.3.1.1 Screening

To determine which projects or developments require a full or partial impact assessment study;

11.3.11.2 Scoping

To identify which potential impacts are relevant to assess (based on legislative requirements, international conventions, expert knowledge and public involvement), to identify alternative solutions that avoid, mitigate or compensate adverse impacts on biodiversity (including the option of not proceeding with the development, finding alternative designs or sites which avoid the impacts, incorporating safeguards in the design of the project, or providing compensation for adverse impacts), and finally to derive terms of reference for the impact assessment.

11.3.11.3 Assessment and evaluation of impacts and development of alternatives,

To predict and identify the likely environmental impacts of a proposed project or development, including the detailed elaboration of alternatives;

1.3.1.4 Reporting the Environmental Impact Statement (EIS) or EIA report,

Including an environmental management plan (EMP), and a non-technical summary for the general audience.

11.3.11.5 Review of the Environmental Impact Statement (EIS),

Based on the Terms of reference (scoping) and public (including authority) participation.

11.3.11.6 Decision-making

On whether to approve the project or not, and under what conditions.

11.3.11.7 Monitoring, compliance, enforcement and environmental Auditing.

Monitor whether the predicted impacts and proposed mitigation measures occur as defined in the EMP. Verify the compliance of proponent with the EMP, to ensure that unpredicted impacts or failed mitigation measures are identified and addressed in a timely fashion.

Check your progress-1
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

11. What are the stages of impact assessment?

……………………………………………………………………………
…………………………………………………………………………...........................

11.4 SOCIAL IMPACTS AND ACTIVITIES

11.4.1 Social Impacts

SIA is much more than the prediction step within an environmental assessment framework. Social impacts are much broader than the limited issues often considered in EIAs (such as demographic changes, job issues, financial security, and impacts on family life). A limited view of SIA creates demarcation problems about what are the social impacts to be identified by SIA, versus what is considered by related fields such as health impact assessment, cultural impact assessment, heritage impact assessment, aesthetic impact assessment, or gender impact assessment. The SIA community of practitioners considers that all issues that affect people, directly or indirectly, are pertinent to social impact assessment.

A convenient way of conceptualising social impacts is as changes to one or more of the following

- ✓ People's way of life – that is, how they live, work, play and interact with one another on a day-to-day basis;
- ✓ Culture – that is, their shared beliefs, customs, values and language or dialect;
- ✓ Community – its cohesion, stability, character, services and facilities;
- ✓ Political systems – the extent to which people are able to participate in decisions that affect their lives, the level of democratisation that is taking place, and the resources provided for this purpose;
- ✓ Environment – the quality of the air and water people use; the availability and quality of the food they eat; the level of hazard or risk, dust and noise they are exposed to; the adequacy of sanitation, their physical safety, and their access to and control over resources;
- ✓ Health and wellbeing – health is a state of complete physical, mental, social and spiritual wellbeing and not merely the absence of disease or infirmity;
- ✓ Personal and property rights – particularly whether people are economically affected, or experience personal disadvantage which may include a violation of their civil liberties;

- ✓ Fears and aspirations – their perceptions about their safety, their fears about the future of their community, and their aspirations for their future and the future of their children.

11.4.2 Activities Comprising SIA

SIA comprises most of the following activities. It:

- ✓ participates in the environmental design of the planned intervention;
- ✓ identifies interested and affected peoples;
- ✓ facilitates and coordinates the participation of stakeholders;
- ✓ documents and analyses the local historical setting of the planned intervention so as to be able to interpret responses to the intervention, and to assess cumulative impacts;
- ✓ collects baseline data (social profiling) to allow evaluation and audit of the impact assessment process and the planned intervention itself;
- ✓ gives a rich picture of the local cultural context, and develops an understanding of local community values, particularly how they relate to the planned intervention;
- ✓ identifies and describes the activities which are likely to cause impacts (scoping);
- ✓ predicts (or analyses) likely impacts and how different stakeholders are likely to respond;
- ✓ assists evaluating and selecting alternatives (including a no development option);
- ✓ assists in site selection;
- ✓ recommends mitigation measures;
- ✓ assists in the valuation process and provides suggestions about compensation (non-financial as well as financial);
- ✓ describes potential conflicts between stakeholders and advises on resolution processes;
- ✓ develops coping strategies for dealing with residual or non-mitigatable impacts;
- ✓ contributes to skill development and capacity building in the community;
- ✓ advises on appropriate institutional and coordination arrangements for all parties;
- ✓ assists in devising and implementing monitoring and management programs.

Check your progress-2
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

2. What are the activities comprising SIA?

………………………………………………………………………
………………………………………………………………………........................
....

11.5 DEVELOPMENT

We all have ideas for ways we can improve living conditions in our communities. For example, maybe in your community, people would like to build a new school or a better health clinic. Maybe there are some roads that need to be repaired or wells and pipes that need to be built to improve access to clean drinking water. Maybe members of your community are interested in a new job training program or developing irrigation systems to provide water for crops and animals during the dry season.

These are all examples of ideas for development of your community—ways to improve quality of life, opportunity and well-being. Different communities and individuals will have many different ideas about what good development means to them.

Government officials, companies, and other groups may have different ideas for development. For example, sometimes governments and companies declare that big projects—such as roads, mines, hydropower dams, or modern buildings—are necessary for the development of the whole country.

Sometimes these big projects can have negative impacts on local communities. If local people say they do not want these projects, they are often told that they are opposed to the development of their country.

But are these projects always really development? What happens if you disagree with a proposed development project because of the harm it will cause? Who should decide what kinds of projects and policies will be best for the future of your communities and country?

There are many different ideas and models for development, so there is no single definition or type of project that is development. The decisions that are made about the development of one area will have a big impact on the lives of all people in that area.

For this reason, everyone should have a voice in defining what kind of development happens in their community and their country.

11.5.1 Different Approaches to Development

When most people think about plans for development, they think about projects which focus on improving people's quality of life. This may include projects that help to support families, build homes, protect the environment, improve access to food, Preserve culture and increase

opportunities to learn and work. This might involve small projects within a community or it might involve big projects carried out by the government or companies. Sometimes development projects and policies can benefit some people but harm others. Good development projects include the ideas of all people who will be affected by the project and find ways to avoid causing harm when they are implemented. For example, a company might decide to build a factory in a rural village to create jobs and make the country richer. However, the factory might also pollute a river that a neighboring community relies on for fishing. This project may benefit the people who get jobs in the factory but harm the fishing families from the nearby village. For the factory to be a good development project, the company will need to find a way to avoid polluting the river and causing harm to the nearby communities. Those responsible for the development will also need to talk to people in the fishing village and ask for their ideas about how to avoid harming their livelihoods and the environment. This approach to development is called inclusive development, because it includes local people in planning and decision-making and focuses on directly improving the lives and opportunities of local people.

Sometimes development projects and policies can benefit some people but harm others. Good development projects include the ideas of all people who will be affected by the project and find ways to avoid causing harm when they are implemented. For example, a company might decide to build a factory in a rural village to create jobs and make the country richer. However, the factory might also pollute a river that a neighboring community relies on for fishing. This project may benefit the people who get jobs in the factory but harm the fishing families from the nearby village.

Unfortunately, around the world, there are many development projects that are Non-Inclusive because they have not taken local communities' ideas and problems into account. These projects can involve taking natural resources away from local communities, or forcing people to move from their homes so that more modern buildings can be built. These are often projects that local communities have no involvement in, and instead of solving their problems they often create new ones. These projects sometimes do not have much benefit for poor people, but mainly benefit people who are already rich and powerful.

11.5.2 Development and Forced Displacement

One of the worst impacts of non-inclusive development is forced displacement. In the name of development people are sometimes evicted from their homes and forced to move out of the way. Many people around the world have become poorer due to forced displacement. This is because in addition to losing their homes, they lose access to the land or resources they depend on for many aspects of their lives, including their food and livelihoods. When people are displaced, in addition to losing their homes, they often lose access to local resources and services. Lost resources might include forests, rivers and farmland. Lost services might include community centers, schools or health clinics. Displacement often leads to the breakdown of communities and social and support networks. When

inclusive development processes are used by communities, governments and companies, there is less risk of forced displacement and these negative impacts happening. This is because local communities who are affected by development projects are asked for their opinions and ideas about the project and how they would like to see their problems being solved. If people are required to move because of a project, inclusive development ensures that they are included in the discussions and decisions about moving. Consultations should happen and action should be taken so that the living conditions of affected people are not negatively affected, or there could even be discussion on how they can be made better. With this approach to development, people's human rights are respected. In the next sections of the Guide, you will learn about human rights and how respect for human rights can improve the way development occurs.

11.5.2.1 Development

Improvement of the quality of life, opportunity and well being. Development can happen at the community level or at the country level. It can be anything from building schools and improving access to health care to building the economy and improving trade with other countries.

11.5.2.2 Inclusive Development

An approach to development which includes local people in planning and decision-making and focuses on improving the lives and opportunities of affected people. Inclusive development also respects people's rights. Many people are excluded from development because of their gender, ethnicity, age, sexual orientation, disability or poverty. The effects of such exclusion are staggering, deepening inequality across the world. The richest ten percent of people in the world own 85 percent of all assets, while the poorest 50 percent own only one percent. Development can be inclusive - and reduce poverty - only if all groups of people contribute to creating opportunities, share the benefits of development and participate in decision-making. Inclusive development follows UNDP's human development approach and integrates the standards and principles of human rights: participation, non-discrimination and accountability. There are many elements for a nation to consider in pursuing inclusive development. A vital one is how to create productive and gainful employment. This should be paired with effective and efficient social safety nets to protect those who cannot work or who earn too little. To reach the Millennium Development Goals (MDGs), many developing countries will also need to enhance public services by building schools and hospitals, training teachers and doctors, and providing access to water, sanitation and transportation, all of which requires public spending. Well-designed fiscal policies - the way a government collects and spends public resources - can play a major role in stimulating growth and reducing poverty. UNDP works with developing countries to improve how inclusive development policies and programmes like those mentioned are designed and implemented. It provides policy advice in areas such as employment strategies, job creation and social safety nets. We help develop the capacity of governments to formulate strategies and fiscal policies that stimulate pro-poor growth, reduce poverty and achieve the MDGs. At the same time, UNDP advocates for a stronger role for the state, enhanced public

investment and economic governance to ensure that everyone has access to vital public services.

11.5.3 Inclusive Development

In addressing the question of what is meant by inclusive development, two issues arise. First, the distinction between growth and development, and second, the import of the term "inclusive." "Development" brings into play dimensions of well being beyond simply income, while "inclusive" focuses attention on the distribution of wellbeing in society. Further intricacies arise, as will be seen, because the answers to these two questions are in fact interrelated. In principle the distinction between growth and development should be clear at a general, abstract level. Growth refers to economic growth, in other words, increase in per capita income. This is a narrowly defined technical concept that is measurable and is indeed measured by statistical agencies the world over. Development, on the other hand, is not at all well defined, at least not as precisely defined, as growth. At different times the term has been used to refer to (i) just economic growth, (ii) changes in economic structure of production (rising share of industry and then services from an agricultural base), (iii) spatial distribution of population (increasing urbanization), (iv) improvements in "social indicators" of education and health, etc. The "modernization" debate in the social sciences has partly been about the normative significance of the trajectory of a country which might go through the above changes—is it a good thing and should countries aim to go through this trajectory? Perhaps the best known exemplar of the distinction between growth and development, certainly the best known in terms of indicators that are on par quantitatively with economic growth as an indicator, is the Human Development Index (HDI).

Let us now turn, however, to a discussion of what is meant by "inclusive." Fairly clearly, it refers in some sense to the distribution of well being, however measured. A given average for a population can be distributed in an infinite number of ways, ranging from perfect equality to extreme equality. And we can evaluate this distribution in a number of different ways, depending on what specific social welfare function is used in evaluating individual well being and then aggregating the evaluation to a social level. One specific form of a social welfare function defined on income, for example, would lead to the well known Foster-Greer-Thorbecke (FGT) class of poverty indices, which have now become the workhorse of empirical income poverty analysis among researchers and in international agencies. This class of indices includes the standard "head count ratio measure" (the fraction of population below the poverty line), "the income gap measure" (the shortfall of poor incomes from the poverty line normalized by the poverty line and total population) and "the squared income gap measure" (using the square of the shortfall, to emphasize the wellbeing of the poorest of the poor). Thus this class of indices can capture values judgments by varying the degree of "poverty aversion". Another member of this family, as the "poverty aversion" becomes infinitely large, coincides with the Rawlsian maxi min measure—evaluation is determined solely by the lowest level of well being, in this case the lowest level of

income. Let us then pursue the notion of inclusiveness as being captured in some sense by poverty.

For a given level of average income, inclusiveness can be measured simply by the degree of poverty. As for changes in average income, growth, its inclusiveness can thus be measured by the change in poverty. Specifically, we can calculate poverty change per unit of increase in per capita income, convert this into elasticity, and use this as a measure of the inclusiveness of growth. Such exercises are now common, and yield useful insights into the nature of growth. Fairly clearly, a given increase in per capita income—a given growth rate—is consistent with a range of changes to poverty (including, even, an increase in poverty). This leads then to the idea of "pro-poor growth" which at this level is indistinguishable from "inclusive growth." Both could be measured by the "growth elasticity" of poverty reduction." But consider now the behavior of the income distribution above the poverty line, and more generally the inequality in the overall distribution, as growth takes place. For example, if inequality in the overall distribution falls with growth, this would have some claim to be labeled "inclusive growth". If there is growth, and a fall in overall inequality, poverty will fall so on this case growth will be "pro-poor" as well. But if there is growth and an increase in inequality, then we could have the case that poverty falls because the growth effect dominates the inequality effect. In this case growth is "pro-poor", in the sense that poverty has fallen; but it is not "inclusive", in the sense that inequality has risen.

There could be an improvement in the average level of literacy, with little or no improvement in literacy below the minimum cut off. On health, average life expectancy across all individuals could improve, but with little or no improvement below some acceptable minimum. Inequalities in health outcomes have become a matter of growing interest in developing and developed countries alike, and some conceptual energy has been devoted to measuring health inequality. Then if development, beyond growth, is to do with improvements in average levels of attainment along dimensions other than income, inclusive development is to do with the distribution of these improvements. Inclusive development occurs when average achievements improve and inequalities in these achievements fall. By analogy with the income case, we can define pro-poor development as occurring when improvements in average attainments are accompanied by improvements of achievements below a critical threshold. Thus when development is inclusive it is also pro-poor. But development can be pro-poor even though it is not inclusive, inequality in this non-income dimension increases, provided that this increase in inequality is not large enough to offset the impact on "non-income poverty" of the average improvement along this dimension. Thus a move from just growth to inclusive development involves two steps— a move to evaluate the distribution as well as the average level of well being along any dimension considered, and a move to include dimensions other than income in the assessment of performance. The move from, growth to inclusive growth takes only the first step, staying focused on the income dimension.

11.5.4 Rural Infrastructure and Inclusive Development

Investing in infrastructure, rural infrastructure in particular, is a policy instrument available to governments to advance their objectives. What light does the objective of inclusive development, as characterized in the previous section, throw on the instrument, and what guidance does it provide for the deployment of the instrument? We focus on the differences with the objective of growth, which means paying attention to two issues—outcomes beyond income, and distribution of these outcomes. As argued above, the MDGs provide a good way of implementing these concerns. Infrastructure is a broad term. The standard usage is of course in terms of roads. But electricity, telephone connections, water supply, buildings to house markets, all fall into this category. In what follows I will use roads as the leading example, and will mostly have roads in mind when I use the term infrastructure, with qualifications noted as they arise. The relationship between infrastructure and the levels and growth of income at the country level is much discussed in the literature. There could in principle be excessive investment in infrastructure with the growth objective, in the sense that the economic rate of return from the investment is below the opportunity cost of funds, but a significant body of literature argues that the issue in most developing countries is too little infrastructure to support rapid growth. The most obvious case is road connections between production centers (whether manufacturing or natural resource extraction) and points of export. Thus, for example, it is argued that one of the reasons why "structural adjustment" did not have as much success as expected in Africa was because of the poor state of infrastructure. "Getting the prices right" to incentivize agricultural production for export was not of much use if the produce could not be got to the port in time and in good condition. But cuts in public expenditure and especially in public investment, worsened an already bad situation and negated the pricing reforms.

Coming right up to date, recent discussions on infrastructure constraints to India's growth prospects have led to an agreement on the need for massive investment if Indian growth is to be sustained. However, while it is the assessment of this author that infrastructure dose play a central role in economic growth, it should be made clear that the literature is not united in ascribing causality from infrastructure to economic growth.

Thus the perspective of inclusive growth leads to a natural focus on rural roads. Rural areas contain the bulk of national poor, globally in aggregate but particularly in Asia, and it is these are among the areas that have been lagging in terms of income growth. This is apparent both in terms of direct comparison of income growth in rural and urban areas, but also in the observations that lagging regions are more rural in their composition than advancing regions in nearly all countries.

11.5.5 Non-Inclusive Development

Development that does not take affected communities' ideas and problems into account. Non-inclusive development projects can involve taking natural resources away from local communities, or forcing people to move from their homes so that more modern buildings can be built.

Check your progress-3
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

3. What is development?

…………………………………………………………………………
……………………………………………………………….........................
....

11.6 DISPLACEMENT

Displacement can be defined as the forcing of communities and individuals out of their homes, often also their homelands, for the purposes of economic development. - Coercion and violation of Human Right

11. Displacement is defined as the act of moving someone or something from one position to another or the measurement of the volume replaced by something else.

a. An example of displacement is when war requires people to move from their homes due to the danger.

b. An example of displacement is the weight of the water that is replaced by an ocean liner.

Displacement: Displacement is seen as the result of a model of development that enforces certain technical and economic choices without giving any serious consideration to those options that would involve the least social and environmental costs.

Most displacement has been involuntary. There has been very little meaningful participation of affected people in the planning and implementation of the dam project, including the resettlement and rehabilitation aspects. The displaced and other affected people have often been the last to receive any meaningful information on the dam project. What information they have received has typically been limited and provided very late in the planning and implementation of mitigation measures. There have been instances of the submergence of land and other property, and of displacement without prior and sufficient warning of the impending filling of the reservoir. The displacement literature bears testimony to traumatic forced and delayed relocation, and to the denial of development opportunity for years and often decades due to a long and uncoordinated displacement and resettlement process. The numbers of both directly and indirectly affected people have frequently been underestimated, and there has been an inadequate understanding of the exact nature and extent of the negative effects involved. The State and other project proponents, largely viewing displacement from the standpoint

of its causes, consistently maintain that displacement is justified in the larger national interest. It is argued that while some displacement may be inevitable in large development projects, the long term good these projects will bring merits the sacrifice of a few in favour of the larger good. This notion of displacement as sacrifice has influenced thinking on displacement considerably. It has stripped displacement of its political content, the fact that displacement involves the loss of people's rights to land and resources. This has also led to a perception of resettlement and rehabilitation as are ward for the sacrifice rather than as a basic right or entitlement.

Those who view displacement from the point of view of its outcomes would in effect say that though some level of displacement may be inevitable its negative consequences are not. It is acknowledged that displacement causes severe social, economic, and environmental stresses that translate themselves into physiological, psychological, socio-cultural, economic, and ecological damage. At the same time it is maintained that by expanding resettlement objectives beyond merely aiming to improve the standards of living of the people, it would be possible to offset these disabilities. Thus moving towards such a just resettlement and rehabilitation is the focus of this school of thought. As a result displacement is large viewed from the perspective of resettlement and rehabilitation and its attendant complexities. The concern of this school of thought is with effective rehabilitation, which it maintains can manage displacement. So much so that very often displacement and resettlement are used interchangeably in this context, typically as involuntary resettlement in the case of the World Bank, for example.

The meaning of displacement has come to be more or less taken for granted, particularly in most academic literature. It is very important to understand that displacement is a multidimensional phenomenon of which physical relocation is only one of the most significant outcomes. The displaced peoples movements have challenged this view of displacement with physical relocation at its centre and instead has as its core the historical experience of millions of displaced people.

This understanding of displacement highlights (i) the alienation of the individual and community legal and customary rights and dislocation of the social and economic organization, and (ii) the politics of legal and policy instruments that sanctions such disenfranchisement. The focus is thus on the experience as well as the structures of displacement. In this context displacement refers not only to those who are forced to physically relocate in order to make way for the project and its related aspects but also includes those who are displaced from their resource base and livelihoods. It is commonly experienced through the loss of land and the disruption of social and economic relationships.

11.6.1 Development-induced displacement and resettlement (relocation) (DIDR)

Development-induced displacement and resettlement (DIDR) is the forcing of communities and individuals out of their homes, often also their homelands, for the purposes of economic development. It is a subset of

forced migration. It has been historically associated with the construction of dams for hydroelectric power and irrigation purposes but also appears due to many other activities, such as mining and the creation of military installations, airports, industrial plants, weapon testing grounds, railways, road developments, urbanization, conservation projects, forestry, etc. Development-induced displacement is a social problem affecting multiple levels of human organization, from tribal and village communities to well-developed urban areas.

According to Bogumil Terminski (2012) approximately fifteen million people each year are forced to leave their homes following big development projects (dams, irrigation projects, highways, urbanization, mining, conservation of nature, etc.). Anthony Oliver-Smith (2009) and Michael M. Cernea (2006) are also estimating that current scale of DIDR amounts to 15 million people per year.

Development-induced displacement or the forced migration in the name of development is affecting more and more people as countries move from developing to developed nations. The people that face such migration are often helpless, suppressed by the power and laws of nations. The lack of rehabilitation policies for migrants means that they are often compensated only monetarily - without proper mechanisms for addressing their grievances or political support to improve their livelihoods.

Displaced people often internalize a sense of helplessness and powerlessness because of their encounter with the powerful external world, although there are also several examples of active resistance movements against development-induced displacement. In every category, particularly among marginalized groups, women are the worst hit and pay the highest price of development. A study carried out by the National Commission for Women in India (NCW) on the impact of displacement on women reveals that violence against women is increased. An increase in alcoholism due to displacement has led to a marked rise in domestic violence in India. In the Lincoln Park Community of Chicago, Illinois, where Jose (Cha-Cha) Jimenez founded the human rights Latino organization: Young Lords, Mayor Richard J. Daley displaced tens of thousands Puerto Ricans and the poor. This displacement helped to prolife rate growing street gangs. Today these gangs' enterprises with murder for hire arson for profit and drug sales as its prime motivation. Displacement has made men feel helpless or insecure and turned women and children into scapegoats. Displacement also leads to deterioration in health and high mortality rates as services in those selected areas are the first to be cut. The nutrition and health of women, which is worse than that of men even under normal circumstances, is bound to go down in the event of an overall worsening in health caused by displacement.

Humanitarian aid agencies and government programs should target their efforts when intervening to assist victims of forced economic displacement, to ensure their work does not run counter to processes aimed at addressing the fundamental roots of the conflict. The Overseas Development Institute advocates the search for durable solutions to the

recovery of displaced persons which go beyond short-term return, relocation and local integration processes.

The Norwegian Refugee Council, Internal Displacement Monitoring Center, has an online review: Development-Induced Displacement.

11.6.2 Causes of Displacement

According to Michael M. Cernea the main causes of development-induced displacement include: water supply (construction of dams, artificial reservoirs, irrigation projects), urban infrastructure, transportation (roads, highways, canals); energy (mining, power plants, oil exploration and extraction, pipelines), expansion of agriculture, parks and forest reserves and population redistribution schemes

Some example of displacement

- ✓ Three Gorges Dam in China - about 11.13 million displaced (recently increased to 4 million, but many could return).
- ✓ Tokuyama Dam in Japan - some 600 displaced.
- ✓ Donji Milanovac for Đerdap hydroelectric power plant
- ✓ Sardar Sarovar Dam in India - between 1 and 2 million displaced

11.6.3 Forced Displacement

When people or communities are made to leave their homes and lands. Forced displacement often happens because of non-inclusive development.

11.6.4 Rehabilitation

Rehabilitation programmes have predominantly focused on the process of physical relocation rather than on the economic and social development of the displaced and other negatively affected people. This has severely eroded the development effectiveness of rehabilitation programmes and heightened the impoverishment risk of the rehabilitator. According to Cernea (1998) risks to adversely affected people are not a component of conventional project analysis. The key economic risks to affected people are from the loss of livelihood and income sources such as arable land, common property resources such as forests, grazing land, ground and surface water, fisheries, etc and changed access to and control of productive resources. The loss of economic power with the breakdown of complex livelihood systems results in temporary or permanent, often decline in living standards leading to marginalisation. Higher risks and uncertainties are introduced when diversified livelihood sources are lost. Loss of livelihood and disruption of agricultural activity can adversely affect household food security, leading to under- nourishment. Higher incidence of diseases associated with deteriorating water quality can result in increased morbidity and mortality. High mortality rates, immediately after involuntary resettlement in Kariba and High Aswan dams, are cases in point. As Cernea notes (1998), forced displacement tears apart the existing social fabric, leading to socio-cultural disarticulation.

Most projects have long planning horizons and the actual physical relocation comes a long time after the initial notifications. The interim period is one full of uncertainties and enormous psycho-social anxieties for

the to-be-relocated communities. Numerous examples exist of communities being subjected to multiple displacements by successive development projects.

The costs of the rehabilitation programme have invariably been underestimated and under-financed. It is often the case that it is always the resettlement and rehabilitation budget that is reduced whenever the project runs into financial problems.

Institutional weaknesses, marked by confusions between various departments and the lack of capacity as well as continuity, have been major problems in ensuring effective resettlement.

In the absence of policy and legal instruments and an effective mechanism to monitor compliance, even well-structured institutions with trained staff have failed in consistent implementation of effective rehabilitation programme.

Generally, participation of the affected people has been superficial or treated as unimportant by those responsible for the project. More often they have been manipulated, co-opted, or directly excluded.

Evidence suggests that for a vast majority of the indigenous/tribal peoples displaced by big projects the experience has been extremely negative in cultural, economic, and health terms. The outcomes have included assetlessness, unemployment, debt-bondage, hunger, and cultural disintegration. For both indigenous and non-indigenous communities studies, show that displacement has disproportionately impacted on women and children.

Rehabilitation sites are invariably selected without reference to availability of livelihood opportunities, or the preferences of displaced persons themselves. Sometimes even temporary shelters are unavailable, and the first few months in the new site are spent in the monsoon rains under the open sky. House-sites are often much smaller than those in which the resettled people lived in the village, and temporary structures where they exist are made of tin or other inappropriate material and design.

The question of livelihoods is a major issue in rehabilitation policy. There is reluctance on the part of governments and lending agencies to adopt and make operational policies requiring that the loss of agricultural land be compensated with alternative land, especially in the face of increasing pressure on land and the limited availability of arable land as well as its high price. This is despite the fact that most non- land-for-land programmes have failed to foster successful self-employment and other non-land-based livelihood strategies, especially in the critical areas of employment, skills, and capacity building.

Forced relocation usually results in people being transplanted from a social ecology in which they were primary actors to one in which they are aliens; they are not only very vulnerable but also end up in most cases as an underclass in their new socio-cultural milieu.

Communities of displaced people are invariably fragmented and randomly atomized, tearing asunder kinship and social networks and traditional support systems. Communities and often even large families are broken up and resettled over a wide area. The outcomes are psychological pathologies and alcoholism etc, common among displaced populations. It

has been documented that this greatly enhanced psychological and psycho-social stress caused by involuntary rehabilitation heightens morbidity and immorality.

The special vulnerabilities and specific needs of indigenous and tribal peoples have been inadequately addressed.

Rehabilitation sites have been under-prepared in terms of basic amenities and essential infrastructure such as health, schooling, and credit.

Generally, displacement as result of acquisition is legally sanctioned while, with few exceptions, there is no legal framework that governs the process of displacement itself.

The existence of nation-wide norms and legally approved rehabilitation policy has played a role in improving outcomes for affected people. However, in the absence of these, the role of multilateral development institutions has assumed significance. In the 1980s, the World Bank played a significant role in influencing the development of rehabilitation policies or institutional framework to manage displacement and rehabilitation.

Both in the case of national laws and international agency policies, there has been a wide gap between the laws and policies and their actual implementation. Cases include the Sardar Sarovar Project where apparently progressive state government and World Bank policies have failed to prevent widespread impoverishment and suffering among displaced people, and the Three Gorges Project in China where a national rehabilitation and resettlement law has not prevented numerous problems from emerging.

In many cases the focus of resettlement programmes is simply to get people to move out of the way to the rehabilitation sites as quickly and smoothly as possible. A number of submissions and cases in the WCD ís review highlighted the exercise of intimidation, violence, and even murder to compel communities to move (see the discussion under Human Rights). Once people are relocated or even shifted out the rehabilitation programme usually fizzles out or loses momentum, with the displaced people now at their most vulnerable. The resettled people are most vulnerable to be forgotten once the physical relocation is complete, a waning of interest sometimes referred to as developer’s fatigue (Argentina Report 1999).
Forced relocation disrupts, or even destroys, social organization of production, networks of relationships, allocation of resources, and an entire complex of rights, individual and communal. These cannot be restored by the mere provision of alternative land and housing.

Once it becomes known that people are to be relocated, a process of deferred investment sets in on the part of those to be rehabilitated, as well as of outside sources, such as government and entrepreneurs. People in areas from which rehabilitation is to take place thus become poorer, even before they are moved. Rehabilitation in the absence of active development initiatives is thus likely to become impoverishment - the opposite of what it is intended to be.

Rehabilitation of displaced people is thus a process that is acknowledged as entailing several risks. As discussed above, Cernea identifies the risks as landlessness, joblessness, homelessness,

marginalization, increased morbidity and mortality, food insecurity, loss of access to common property and services, and social disarticulation (1998: 43-44). These risks render rehabilitation inherently problematic, and indeed impoverishment and disempowerment have been the rule than the exception with respect to rehabilitated people around the world.

Simply restoring the status quo ante in terms of material assets will thus leave people worse off than before. Therefore the main objective of a rehabilitation programme must be to improve the standard of living and not just restoration of pre-relocation standards of living. While the restoration of prerelocation standards is still echoed in several rehabilitation programmes there is enough evidence to indicate that this goal is limited and inadequate (Scudder, T. 1997).

11.6.5 Rehabilitation and Development

Rehabilitation can be envisioned as a process that would reverse the risks of resettlement. Cernea suggests a risk and reconstruction model of rehabilitation that would be marked by a series of transitions from:

- Landlessness to land-based resettlement;
- Joblessness to re-employment;
- Food insecurity to safe nutrition;
- Homelessness to house reconstruction;
- Increased morbidity and mortality to improved health and well being, and
- Social disarticulation and deprivation of common property resources to community reconstruction and social inclusion (Cernea M.M. 1998:47).

Rehabilitation is only possible where development takes place. Thus resettlement must be planned as an integral part of the comprehensive development project (Jain, L.C. 2000). In this sense rehabilitation is really an outcome of resettlement that is conceived not as physical relocation or mere restoration of incomes but as development. This brings us to the question of development in the context of resettlement and rehabilitation.

One useful way of understanding development in the context of resettlement and rehabilitation of negatively affected people is, in terms of the real freedoms that the citizens enjoy, to pursue the objectives they have reason to value, and in this sense the expansion of human capability can be, broadly, seen as the central feature of the process of development (Dreze J. & Sen A. 1996:10).

A resettlement programme in order to qualify as development must therefore centre around: (i) enhancement of capabilities; and (ii) the expansion of social opportunities by addressing the social and personal constraints that restrict peoples choices. This would mean that resettlement with development entails questions of resources and rights that would affect the quality of life of the people.

The success of development programmes cannot be judged merely in terms of their effects on incomes and outputs, and must, at a basic level, focus on the lives that people can lead. This would mean (i) tangible benefits like lower morbidity and mortality, an increasing level of education, increasing incomes through opportunities for employment and

livelihood; and (ii) empowering the displaced people through building capacities by their participation in the entire decision-making process of the development project and resettlement.

We will once again return to the issue when we discuss the question of what constitutes the fundamentals of a successful developmental resettlement programme. One overarching issue is the need to move from a context where forced evictions or involuntary resettlement is assumed to be the norm, to one where displacement becomes voluntary and takes place on the basis of negotiated agreements between developers and affected people.

Check your progress-4
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

4. State the causes of displacement.

…………………………………………………………………………
…………………………………………………………………………
…………………………………………………………………………

11.7 ENVIRONMENTAL PROBLEMS

Our environment is constantly changing. There is no denying that. However, as our environment changes, so does the need to become increasingly aware of the problems that surround it. With a massive influx of natural disasters, warming and cooling periods, different types of weather patterns and much more, people need to be aware of what types of environmental problems our planet is facing.

Global warming has become an undisputed fact about our current livelihoods; our planet is warming up and we are definitely part of the problem. However, this isn't the only environmental problem that we should be concerned about. All across the world, people are facing a wealth of new and challenging environmental problems every day. Some of them are small and only affect a few ecosystems, but others are drastically changing the landscape of what we already know.

Our planet is poised at the brink of a severe environmental crisis. Current environmental problems make us vulnerable to disasters and tragedies, now and in the future. We are in a state of planetary emergency, with environmental problems piling up high around us. Unless we address the various issues prudently and seriously we are surely doomed for disaster. Current environmental problems require urgent attention.

11.7.1 Pollution

Pollution of air, water and soil require millions of years to recoup. Industry and motor vehicle exhaust are the number one pollutants. Heavy metals, nitrates and plastic are toxins responsible for pollution. While

water pollution is caused by oil spill, acid rain, urban runoff; air pollution is caused by various gases and toxins released by industries and factories and combustion of fossil fuels; soilpollution is majorly caused by industrial waste that deprives soil from essential nutrients.

11.7.11.1 Air Pollution

Pollution of air, water and soil take a huge number of years to recover. Industry and engine vehicle fumes are the most obvious toxins. Substantial metals, nitrates and plastic are poisons in charge of pollution. While water contamination is brought about by oil slicks, acid rain, and urban sprawl; air contamination is created by different gasses and poisons discharged by businesses and manufacturing plants and burning of fossil fills; soil contamination is majorly created by mechanical waste that takes supplements out of the soil.

11.7.11.2 Soil and Land Pollution

Land pollution simply means degradation of earth's surface as a result of human activities like mining, littering, deforestation, industrial, construction and agricultural activities. Land pollution can have huge environmental impact in the form of air pollution and soil pollution which in turn can have adverse effect on human health.

11.7.2 Global Warming

Climate changes like global warming is the result of human practices like emission of Greenhouse gases. Global warming leads to rising temperatures of the oceans and the earth' surface causing melting of polar ice caps, rise in sea levels and also unnatural patterns of precipitation such as flash floods, excessive snow or desertification.

11.7.3 Overpopulation

The population of the planet is reaching unsustainable levels as it faces shortage of resources like water, fuel and food. Population explosion in less developed and developing countries is straining the already scarce resources. Intensive agriculture practiced to produce food damages the environment through use of chemical fertilizer, pesticides and insecticides. Overpopulation is one of the crucial current environmental problem**.**

11.7.4 Natural Resource Depletion

Natural resource depletion is another crucial current environmental problems. Fossil fuel consumption results in emission of Greenhouse gases, which is responsible for global warming and climate change. Globally, people are taking efforts to shift to renewable sources of energy like solar, wind, biogas and geothermal energy. The cost of installing the infrastructure and maintaining these sources has plummeted in the recent years.

11.7.5 Waste Disposal

The over consumption of resources and creation of plastics are creating a global crisis of waste disposal. Developed countries are notorious for producing an excessive amount of waste or garbage and dumping their waste in the oceans and, less developed countries. Nuclear waste disposal has tremendous health hazards associated with it. Plastic, fast food, packaging and cheap electronic wastes threaten the well being of humans. Waste disposal is one of urgent current environmental problem**.**

11.7.6 Climate Change

Climate change is yet another environmental problem that has surfaced in last couple of decades. It occurs due to rise in global warming which occurs due to increase in temperature of atmosphere by burning of fossil fuels and release of harmful gases by industries. Climate change has various harmful effects but not limited to melting of polar ice, change in seasons, occurrence of new diseases, frequent occurrence of floods and change in overall weather scenario.

11.7.7 Loss of Biodiversity

Human activity is leading to the extinction of species and habitats and and loss of bio-diversity. Eco systems, which took millions of years to perfect, are in danger when any species population is decimating. Balance of natural processes like pollination is crucial to the survival of the eco-system and human activity threatens the same. Another example is the destruction of coral reefs in the various oceans, which support the rich marine life.

11.7.8 Deforestation

Our forests are natural sinks of carbon dioxide and produce fresh oxygen as well as helps in regulating temperature and rainfall. At present forests cover 30% of the land but every year tree cover is lost amounting to the country of Panama due to growing population demand for more food, shelter and cloth. Deforestation simply means clearing of green cover and make that land available for residential, industrial or commercial purpose.

11.7.9 Ocean Acidification

It is a direct impact of excessive production of CO2. 25% of CO2 produced by humans. The ocean acidity has increased by the last 250 years but by 2100, it may shoot up by 150%. The main impact is on shellfish and plankton in the same way as human osteoporosis.

11.7.10 Ozone Layer Depletion

The ozone layer is an invisible layer of protection around the planet that protects us from the sun's harmful rays. Depletion of the crucial Ozone layer of the atmosphere is attributed to pollution caused by Chlorine and Bromide found in Chloro-floro carbons (CFC's). Once these toxic gases reach the upper atmosphere, they cause a hole in the ozone layer, the biggest of which is above the Antarctic. The CFC's are banned in many industries and consumer products. Ozone layer is valuable because it prevents harmful UV radiation from reaching the earth. This is one of the most important current environmental problems.

11.7.11 Acid Rain

Acid rain occurs due to the presence of certain pollutants in the atmosphere. Acid rain can be caused due to combustion of fossil fuels or erupting volcanoes or rotting vegetation which release sulfur dioxide and nitrogen oxides into the atmosphere. Acid rain is a known environmental problem that can have serious effect on human health, wildlife and aquatic species.

11.7.12 Water Pollution

Clean drinking water is becoming a rare commodity. Water is becoming an economic and political issue as the human population fights for this resource. One of the options suggested is using the process of

desalinization. Industrial development is filling our rivers seas and oceans with toxic pollutants which are a major threat to human health.

11.7.13 Urban Sprawl

Urban sprawl refers to migration of population from high density urban areas to low density rural areas which results in spreading of city over more and more rural land. Urban sprawl results in land degradation, increased traffic, environmental issues and health issues. The ever growing demand of land displaces natural environment consisting of flora and fauna instead of being replaced.

11.7.14 Public Health Issues

The current environmental problems pose a lot of risk to health of humans, and animals. Dirty water is the biggest health risk of the world and poses threat to the quality of life and public health. Run-off to rivers carries along toxins, chemicals and disease carrying organisms. Pollutants cause respiratory disease like Asthma and cardiac-vascular problems. High temperatures encourage the spread of infectious diseases like Dengue.

11.7.15 Genetic Engineering

Genetic modification of food using biotechnology is called genetic engineering. Genetic modification of food results in increased toxins and diseases as genes from an allergic plant can transfer to target plant. Genetically modified crops can cause serious environmental problems as an engineered gene may prove toxic to wildlife. Another drawback is that increased use of toxins to make insect resistant plant can cause resultant organisms to become resistant to antibiotics.

The need for change in our daily lives and the movements of our government is growing. Because so many different factors come into play; voting, governmental issues, the desire to stick to routine, many people don't consider that what they do will affect future generations. If humans continue moving forward in such a harmful way towards the future, then there will be no future to consider. Although it's true that we cannot physically stop our ozone layer from thinning (and scientists are still having trouble figuring out what is causing it exactly,) there are still so many things we can do to try and put a dent in what we already know. By raising awareness in your local community and within your families about these issues, you can help contribute to a more environmentally conscious and friendly place for you to live.

11.7.16 Increased Carbon Footprint

Temperature increases, like climate change, are the consequence of human practices, including the use of greenhouse gasses. When the atmosphere changes and the heat increases, it can cause a number of problems and start to destroy the world we live in.

11.7.17 Genetic Modification

Genetic modification utilizing biotechnology is called genetic engineering. Genetic engineering of food brings about expanded poisons and sicknesses as qualities from a hypersensitive plant can exchange to target plant. Some of these crops can even be a threat to the world around us, as animals start to ingest the unnatural chemicals and such.

11.7.18 Effect on Marine Life

The amount of carbon in the water and the atmosphere is continuing to be a problem in the world around us. The primary effect is on shellfish and microscopic fish, and it has similar effects to osteoporosis in humans.

11.7.19 Mining

Mining results in extraction of minerals from earth’s core. These minerals also bring out harmful chemicals from deep inside the earth to the earth’s surface. The toxic emissions from mining can cause air, water and soil pollution.

11.7.20 Natural Disasters

Natural disasters like earthquakes, floods, tsunamis, cyclones, volcanic eruption can be unpredictable, devastating and can cause irreparable damage. They can cause huge loss of life and property.

11.7.21 Nuclear Issues

Radioactive waste is a nuclear fuel that contains radioactive substance and is a by-product of nuclear power generation. The radioactive waste is an environmental concern that is extremely toxic and can have devastating effect on the lives of the people living nearby, if not disposed properly. Radioactive waste is considered to be harmful for humans, plants, animals and surrounding environment.

11.7.22 Loss of Endangered Species

Human overpopulation is prompting the elimination of species and environmental surroundings and the loss of various biomes. Environmental frameworks, which took a huge number of years to come into being, are in risk when any species populace is huge.

11.7.23 Agricultural Pollution

Modern day agriculture practices make use of chemical products like pesticides and fertilizers to deal with local pests. Some of the chemicals when sprayed do not disappear and infact seeps into the ground and thereby harms plants and crops. Also, contaminated water is used for irrigation by farmers due to disposal of industrial and agricultural waste in local water bodies.

11.7.24 Light and Noise Pollution

Noise pollution is another common form of pollution that causes temporary disruption when there is excessive amount of unpleasant noise. Construction activities, industrialization, increase in vehicular traffic, lack of urban planning are few of the causes of noise pollution.

11.7.25 Medical Waste

Medical waste is any kind of waste that is produced in large quantity by healthcare centers like hospitals, nursing homes, dental clinics and is considered to be of a bio-hazardous nature. The waste can include needles, syringes, gloves, tubes, blades, blood, body parts and many more.

11.7.26 Littering and Landfills

Littering simply means disposal of piece of garbage or debris improperly or at wrong location usually on the ground instead of disposing them at trash container or recycling bin. Littering can cause huge environmental and economic impact in the form of spending millions of dollars to clean the garbage of road that pollute the clean air.

Landfills on the other hand are nothing but huge garbage dumps that make the city look ugly and produce toxic gases that could prove fatal for humans and animals. Landfills are generated due to large amount of waste that is generated by households, industries and healthcare centers every day.

There is little doubt that environmental problems will be one of humanity's major concerns in the twenty-first century, and it is becoming apparent that sociologists can play an important role in shedding light on these problems and the steps that need to be taken to cope with them. While the study of environmental issues is an inherently interdisciplinary project, spanning the natural and social sciences as well as humanities, the crucial role of the social sciences in general and sociology in particular are increasingly recognized (e.g., Brewer and Stern 2005). This stems from growing awareness of the fact that environmental problems are fundamentally social problems: They result from human social behavior, they are viewed as problematic because of their impact on humans (as well as other species), and their solution requires societal effort. It is, therefore, not surprising that sociologists have shown growing interest in environmental issues in recent decades and that environmental sociology has become a recognized field. Yet sustained sociological investigation of environmental problems did not come easily, and is a relatively recent development in the field

Although there was scattered sociological attention to both urban problems and natural resource issues prior to the 1970s, environmental sociology developed in that decade as sociology's own response to the emergence of environmental problems on the public agenda. At first, sociologists tended to limit their attention to analyzing societal response to environmental problems, rather than examining the problems themselves. But as sociologists gradually paid more attention to environmental issues, some began to look beyond societal awareness of environmental problems to examine the underlying relationships between modern, industrial societies and the biophysical environments they inhabit. The result was the emergence of environmental sociology as a field of inquiry (Buttel 1987; Dunlap and Catton 1979a). We briefly discuss how and why environmental sociology represents a major departure from sociology's traditional neglect of environmental phenomena, describe the field's institutionalization, examine the key environmental foci of research in the field, and review both early and more recent research emphases in the field. Early emphases mainly involved analyses of societal awareness of environmental issues, whereas recent emphases continue this line of research but also include considerable work on the causes, impacts, and solutions of environmental problem.

Check your progress-5
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

5. What are the environmental problems?

…………………………………………………………………………
…………………………………………………………………………
…………………………………………………………………………

11.8 LET US SUM UP

In this unit, you have learnt about the concept social impact assessment meaning and definition, impact of environmental issues, development, displacement relocation, and environmental problems. Thus, this unit of social impact assessment has brought you closer to know the above said topics and usage in your educational career. This content might play a very important role in your social service.

11.9 UNIT- END- EXERCISES

1. State the need of social impact assessment of environmental issues.
2. State the significance of displacement and relocation.
3. Describe the environmental problems.

1.10 ANSWER TO CHECK YOUR PROGRESS

1. **stages of Impact Assessment**

   Screening: To determine which projects or developments require a full or partial impact assessment study;

   Scoping: To identify which potential impacts are relevant to assess (based on legislative requirements, international conventions, expert knowledge and public involvement), to identify alternative solutions that avoid, mitigate or compensate adverse impacts on biodiversity (including the option of not proceeding with the development, finding alternative designs or sites which avoid the impacts, incorporating safeguards in the design of the project, or providing compensation for adverse impacts), and finally to derive terms of reference for the impact assessment.

   Assessment and evaluation of impacts and development of alternatives: To predict and identify the likely environmental impacts of a proposed project or development, including the detailed elaboration of alternatives

Reporting the Environmental Impact Statement (EIS) or EIA report:Including an environmental management plan (EMP), and a non-technical summary for the general audience.
Review of the Environmental Impact Statement (EIS): Based on the Terms of reference (scoping) and public (including authority) participation.
Decision-making:On whether to approve the project or not, and under what conditions.
Monitoring, compliance, enforcement and environmental Auditing.

2. participates in the environmental design of the planned intervention;
identifies interested and affected peoples;
facilitates and coordinates the participation of stakeholders;
documents and analyses the local historical setting of the planned intervention so as to be able to interpret responses to the intervention, and to assess cumulative impacts;
collects baseline data (social profiling) to allow evaluation and audit of the impact assessment process and the planned intervention itself;
gives a rich picture of the local cultural context, and develops an understanding of local community values, particularly how they relate to the planned intervention;
identifies and describes the activities which are likely to cause impacts (scoping);
predicts (or analyses) likely impacts and how different stakeholders are likely to respond;
assists evaluating and selecting alternatives (including a no development option);
assists in site selection;
recommends mitigation measures;
assists in the valuation process and provides suggestions about compensation (non-financial as well as financial);
describes potential conflicts between stakeholders and advises on resolution processes;
develops coping strategies for dealing with residual or non-mitigatable impacts;
contributes to skill development and capacity building in the community;
advises on appropriate institutional and coordination arrangements for all parties;
assists in devising and implementing monitoring and management programs.
3. Improvement of the quality of life, opportunity and well being. Development can happen at the community level or at the country level. It can be anything from building schools and improving access to health care to building the economy and improving trade with other countries.

4. Causes of Displacement

According to Michael M. Cernea the main causes of development-induced displacement include: water supply (construction of dams, artificial reservoirs, irrigation projects), urban infrastructure, transportation (roads, highways, canals); energy (mining, power plants, oil exploration and extraction, pipelines), expansion of agriculture, parks and forest reserves and population redistribution schemes

Some example of displacement

Three Gorges Dam in China - about 11.13 million displaced (recently increased to 4 million, but many could return).
Tokuyama Dam in Japan - some 600 displaced.
Donji Milanovac for Đerdap hydroelectric power plant
Sardar Sarovar Dam in India - between 1 and 2 million displaced

5. Pollution

Air Pollution
Soil and Land Pollution
Global Warming
Overpopulation
Natural Resource Depletion
Waste Disposal
Climate Change
Loss of Biodiversity
Deforestation
Ocean Acidification
Ozone Layer Depletion
Acid Rain
Water Pollution
Urban Sprawl
Public Health Issues
Genetic Engineering
Increased Carbon Footprint
Genetic Modification
Effect on Marine Life
Mining
Natural Disasters
Nuclear Issues
Loss of Endangered Species
Agricultural Pollution
Light and Noise Pollution
Medical Waste
Littering and Landfills

11.11 SUGGESTED READINGS

1. Chitamber, JB (1990) Introduction to Rural Sociology. Wiley Eastern Pvt. Ltd, New Delhi.
2. Desai, AR (1978) Rural Sociology in India. Popular Prakashan, Bombay.
3. Sharan, AK (1999) Social Psychology. Commonwealth Publishers. New Delhi
4. Desai, A.R. 1959 Social Background of Indian Nationalism. Popular Prakashan, Bombay.
5. Dube, S.C. 1955. Indian Village. Cornell University Press: New York
6. Bertrand, Alvin Lee, ed. Rural sociology: an analysis of contemporary rural life. McGraw-Hill, 1958.
7. Gillette, John Morris. Constructive rural sociology. Sturgis & Walton Company, 1915.
8. Mukherjee, Ramkrishna 1979. Sociology of Indian Sociology. Allied Publishers, Bombay.
9. Singh, Yogendra. 1979. "On the History of Sociology in India" in Mohini Mullick (ed.) Social Enquiry: Goals and Approaches. Manohar, Delhi.
10. Srinivas, M.N. and Panini 1986. "The Development of Sociology and Social Anthropology in India" in T.K. Oommen & Partha N. Mukherji (eds) Indian Sociology Reflections of Introspections, Popular Prakashan, Bombay. Emergence of Sociology in India.
11. https://study.com/academy/lesson/what-is-ecology-definition-lesson-quiz.html

UNIT- XII

INTRODUCTION TO ENVIRONMENTALISM

Structure

12.1 INTRODUCTION

Among the biotic components a knowledge of physical environmental factors like light, temperature, winds, water, soil etc. is important if we wish to understand the survival, distribution, abundance and adaptability of organisms in different ecosystems of the earth. In this unit, we will describe the solar radiation reaching the earth, its qualitative and quantitative features, temperature and the atmosphere. We will also learn about the instruments used for the measurement of light. Variations in light and heat significantly affect the distribution and behaviour of biotic communities. Green plants trap sun's energy and convert it to energy through the process of photosynthesis. In animals, light reception is the t important sensory modality in the exploration of environment. Most animals are with light receptors, which to a great extent influence their behavior. Organs are adapted to a certain range of temperature only in which they can survive. Plants and animals tolerate extremes of temperature by developing special structural and physiological adaptations

or develop special strategies to avoid unfavorable temperature regimes. Wind is yet another important factor which affects the distribution and behavior of organisms. The importance of wind is especially prominent in case of plants which have special needs to withstand high wind velocity. Some of these adaptations will be briefly discussed in the unit.

12.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Acquires knowledge about global environmentalism
- ✓ Understand the concept global environmental movement
- ✓ Explain the importance of environmentalism

12.3 GLOBAL ENVIRONMENTALISM

Global Awareness of Environmental Consequences: Environmentalism is a combined philosophy and ideology that has led to a social movement with regards to the consequences and impact of human activities on the environment and the need to protect and improve the physical health of the environment. Environmentalism campaigns for preservation, conservation, restoration, and improvement in the health of the environmental.

A social movement or an ideology focused on the welfare of the environment, environmentalism seeks to protect and conserve the elements of earth's ecosystem. Environmentalism works to correct the damage as well as prevent future destruction, spawning numerous environmental groups in America and around the world. Even with the combinations of legislation and improved corporate behavior, nonprofit organizations still play a significant role in achieving environmental goals.

12.3.12. Definition of Environmentalism

Environmentalism can be described as a social movement or as an ideology focused on the welfare of the environment. Environmentalism seeks to protect and conserve the elements of earth's ecosystem, including water, air, land, animals, and plants, along with entire habitats such as rainforests, deserts and oceans. Concepts dealing with environmental issues include the management of natural resources, overpopulation, commercial logging, urbanization and global warming. The effects of human development ad activity have harmed and altered the earth's natural state. Environmentalism works to correct the damage as well as prevent future destruction.

Check your progress-1
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

1. What is global environmentalism?

…………………………………………………………………………
…………………………………………………………………..........................
....

12.4 ENVIRONMENTAL MOVEMENTS

12.4.1 Historic Roots

Environmentalism began as a movement in the 1960s and 1970s. However, humanity's relationship and dependence on the earth for survival has existed since the beginning of time. Many cultures including Native Americans, Aborigines, Africans and South Americans have understood this interconnection with the natural world. Western cultures had a poor understanding of this relationship as they separated themselves from the land through technology and development. Beginning in the nineteenth century, the Industrial Revolution caused many changes; Western people realized their behavior had a negative impact on the environment (Stradling and Thorsheim 1999). In the growing industrial cities of London, New York and Chicago, coal burning factories polluted the air and water while the need for lumber to build factories and homes caused mass deforestation and subsequent destruction of animal life.

On a relatively small scale, groups of people were concerned about the future of the environment. Scientists studied ecological systems while others formed clubs and initiated protests. These concerned people became known as conservationists, a predecessor to the modern environmentalist. Some of the earliest protests against pollution and for the conservation of natural resources and wildlife happened in the late nineteenth century, (Rome 2003). Earth-friendly groups, such as the Sierra Club established in 1892, inspired President Theodore Roosevelt's innovative conservation programs (Sierra Club). Unfortunately, two World Wars and the Great Depression overshadowed conservation and environmental issues.

In the years proceeding World War II, America experienced an economic boom. New technologies introduced atomic energy, synthetic materials and chemicals, such as pesticides, which led to advancements in agriculture and consumer products. The booming economy allowed the average family to afford a house, automobile and other amenities at soaring rates. Lands outside of cities were bulldozed for suburban development, new factories emitted more pollution due to the production of more goods

and larger numbers of cars discharged additional exhaust; "pollution was the price of economic progress" (Rome 2003, 525).

As the prosperity of the postwar years continued, the environmental consciousness of Americans awakened regarding the effects of environmental destruction. Scholars and environmentalists believe the beginning of the modern environmental movement can be attributed to the 1962 publication of Silent Spring, a book by Rachel Carson. Carson wrote a stunning cautionary book about pesticides and the consequences to animal and human life. (Environmental Protection Agency; Rome 2003). Other books, such as Paul Ehrlich's The Population Bomb published in 1968, built momentum for the movement (Pearce 2000). Simultaneously, the increased visibility of air and water pollution, as well as disappearing green space and natural habitats sparked the interests of activists across America.

The 1960s and 1970s are recognized for radical political, social and cultural movements including civil rights, feminism and protests of the Vietnam War. For many activists of this era, environmental concerns fit into their belief system of questioning authority and the status quo. Some of the early activists were youth on the extreme left of the political spectrum who earned unfavorable reputations for tactics, such as chaining themselves to trees marked for bulldozers, dumping oil into the reflecting pools at Standard Oil Headquarters, or holding dead fish at protests to demonstrate river damage (Rome 2003). This radical behavior received attention and helped inform the public of environmental atrocities. In 1969, the Cuyahoga River near Cleveland, Ohio was so polluted with toxic chemicals and industrial waste that the river actually blazed with fire (Roston 1999). For many Americans, this was the turning point in acknowledgement of the need for drastic government action to protect the environment.

Over the course of Lyndon B. Johnson's presidency during the 1960s, he signed nearly three hundred conservation and beautification measures, which laid the foundation for future legislation. Johnson wanted to follow the footsteps of previous presidential conservationists, such as Teddy Roosevelt and Franklin Roosevelt, and leave his legacy to history as a protector of the environment (Rome 2003).

In the beginning of the 1970s, the most significant environmental legislation was enacted by President Richard Nixon. Nixon signed the National Environmental Policy Act in 1970 and created the Environmental Protection Agency (EPA) by executive order. The EPA is the governmental agency responsible for protecting the environment through federal research, monitoring, and standard setting and enforcement activities. Under the EPA, a new series of environmental laws surpassed the Johnson initiatives in requiring business to reduce pollution (Rome 2003). The most hard-hitting EPA legislation was the passages of the Clean Air Act, Clean Water Act and the Endangered Species Act. Not coincidentally, the first Earth Day was held in April of 1970. About 20

million Americans, including members of 1500 colleges, gathered to demonstrate concern about the environmental crisis (Rome 2003).

Presidents Teddy Roosevelt, Franklin Roosevelt, Lyndon Johnson and Richard Nixon laid the foundation for environmental change. Building on decades of obvious pollution and environmental irresponsibility, these initiatives and the mounting media coverage established environmentalism as a globall concern.

Check your progress-2
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

2. What do you mean by environmental movement?

…………………………………………………………………………
…………………………………………………………………………...........................
....

12.5 ENVIRONMENTAL COMPONENTS

All of us know that the sun is the ultimate source of energy for all activities in our biosphere. The electromagnetic radiations from the sun supply energy which warms up the earth and the atmosphere to provide a favourable global temperature for the living organisms. In addition, light plays a variety of roles in the living world. It is essential for photosynthesis, the process by which light is converted into usable chemical energy. It is involved in the transmission of information, for instance, it helps plants and animals to programme their life cycles. coordinates the opening of buds and flowers, dropping of leaves and a variety of other physiological processes. Variation in the amount of light generally affects the local distribution of plants. In animals light regulates reproduction, hibernation and migration and of course makes vision possible. All these biological phenomena are readily influenced by variation in the intensity, and by seasonal or diurnal variations of light.

12.5.1 Temperature

Temperature is a major physical environmental factor which profoundly influences the vital activities of living organisms like, metabolism, growth and reproduction. The primary effect of temperature is on the stability and activities of enzymes which carry out and regulate the biochemical reactions in the cells. Temperature also affects the properties of biomembranes. We know that there are large temperature differences over the earth to which organisms must adapt. Temperature and availability of water in an area largely determine the types of plants and animals that can grow, survive and reprduce there. Every organism has certain

range of tolerance for temperature delineated by an upper and lower lethal temperature, which vary from species to species. Thus, temperature is one of the factors that limit the geographical distributions of plants and animals. Temperature also indirectly influences the availability of water which itself is an important ecological factor. Before we describe the adaptations in organisms due to temperature stress let us discuss the temperature variation at different latitudes and altitudes and examine the global picture of temperature.

12.5.2 Atmosphere

The earth is surrounded by a gaseous envelope called atmosphere. The atmosphere is an essential part of our biosphere. It is important to study the composition of the atmosphere because this composition is responsible for the weather and climate on our planet and life supporting system.

Composition

The present day composition of atmosphere is the product of a lengthy evolutionary process that began more than four billion years ago. It is composed of a mixture of many different gases and suspended particles. However, most of them are present in trace amounts. Nitrogen and oxygen are the major constituents while CO, is only 0.03%. Because of continual mixing of atmospheric gases, this composition is almost constant for approximately 15 krn height. We may travel. Anywhere on the earth and be confident that we are breathing essentially the same type of air.

Atmosphere also contains minute liquid or solid particles in a suspended form which are known as aerosols. Most of these are found in the lower atmosphere (up to 80 km) near the earth's surface. They originate as a result of forest fires, wind erosion of soil, as sea salt crystals from ocean sprays as well as, from industrial and agricultural activities.

12.5.3 Water

It may interest you to know that water is a universal solvent and is a major constituent of all living organisms. Earth is the only planet where water exists in all its three phases. Availability and absence of water influence the distribution and abundance of plants, animals as well as human societies. The uniqueness of water is due to its structure and properties which are discussed in the following lines.

A water molecule consists of two atoms of hydrogen and one oxygen. The hydrogen atoms share their electrons with the oxygen atom. The shared electrons become asymmetrically distributed. The negatively charged electrons are attracted more towards the oxygen nucleus which is more positively charged (8+) than a hydrogen nucleus (I+). Consequently, the hydrogen nuclei develop a smaH (delta) positive charge and the oxygen nucleus a small (delta) negative charge. Such a molecule is known as a polar molecule. Remember that overall a water molecule is neutral since the number of electrons is equal to the number of protons. Because of the polar nature of water molecules, they will cluster around ions and other polar. The polar nature of H,O molecule leads to the formation of a weak

hydrogen bond between two adjacent molecules. Many water molecules join to form a lattice structure which is responsible for the cohesive nanugof water and many of its unusual properties like high surface tension, specific heat and heat of vaporization.

12.5.4 Soil

The word soil is derived from Latin word 'solum' meaning earthy material in which plants grow. The soil is the consolidated outer layer of the earth's crust ranging in thickness from a mere film to three meters or more. It provides mechanical anchorage to plants, besides being a reservoir of water and plant nutrients. The soil also supports a rich and highly diversified micro-flora and fauna. Typically, soil is a complex mixture of inorganic and organic materials. The inorganic materials, that is, the mineral constituents of soil are derived from parent material by fragmentation and weathering. The pore spaces formed between the mineral particles of soil are filled with water and gases. The organic components of soil comprise organic wastes, dead remains of plants and animals, and their decomposition products. Besides, a large variety of algae, bacteria, fungi and many small and large animals are invariably present in a fertile soil.

12.6 IMPORTANCE OF GLOBAL ENVIRONMENTALISM

GEF investments are predicated on the delivery of global environmental benefits in biodiversity, climate change mitigation, international waters, land degradation and forests, and chemicals and waste. Increasingly, GEF is seeking to deliver multiple environmental benefits through integrated investments across the various dimensions of the global environment.

12.6.1 Biodiversity

Global environmental benefits resulting from GEF's biodiversity financing include:

- Conservation of globally significant biodiversity;
- Sustainable use of the components of globally significant biodiversity; and
- Fair and equitable sharing of the benefits arising from the utilization of genetic resources, including by appropriate access to genetic resources.

12.6.2 Climate Change Mitigation

Global environmental benefit in the Climate Change Mitigation focal area is the sustainable mitigation of the concentration of anthropogenic greenhouse gases (GHG) in the atmosphere. Specifically, it includes:

- Mitigated GHG emissions;
- Increased use of renewable energy and decreased use of fossil energy resources;
- Improved energy efficiency;
- Increased adoption of innovative technologies and management practices for GHG emission reduction and carbon sequestration; and
- Conservation and enhanced carbon stocks in agriculture, forest, and other land use.

12.6.3 Land Degradation

Global environmental benefits resulting from GEF's focus on land degradation focal area, specifically addressing desertification and deforestation, include:

- Improved provision of agro-ecosystem and forest ecosystem goods and services;
- Mitigated/avoided greenhouse gas emissions and increased carbon sequestration in production landscapes;
- Conservation and sustainable use of biodiversity in productive landscapes; and
- Reduced pollution and siltation of international waters.

12.6.4 International Waters

Global environmental benefits targeted by GEF's work in international waters relate to transboundary concerns, including:

- Multi-state cooperation to reduce threats to international waters;
- Reduced pollution load in international waters from nutrient enrichment and other land-based activities;
- Restored and sustained freshwater, coastal, and marine ecosystems goods and services, including globally significant biodiversity, as well as maintained capacity of natural systems to sequester carbon; and
- Reduced vulnerability to climate variability and climate-related risks, and increased ecosystem resilience.

12.6.5 Chemicals and Waste

GEF's long term goal in chemicals and waste is to prevent the exposure of humans and the environment to harmful chemicals and waste of global importance, including persistent organic pollutants, mercury and ozone depleting substances, through a significant reduction in the production, use, consumption and emissions/releases of those chemicals and waste. Global environmental benefits resulting from GEF's objectives in the area of chemicals and waste include:

- Protected human health and environment through the reduction and elimination of mercury use and prevention of anthropogenic emissions and releases of mercury and mercury compounds;
- Protected human health and environment through the phase out of production and consumption of ozone depleting substances;
- Reduced risks on human health and the environment through reducing and eliminating production, use and releases of Persistent Organic Pollutants and their waste; and
- Reduced risks on human health and the environment through sound management of chemicals and waste of global concern.

12.6.6 Sustainable Forest Management/REDD+

Multiple global environmental benefits addressing the emphasis placed by UNFCCC, CBD and UNCCD on the importance of conservation, sustainable use and management of forests, include:

- Reduction in forest loss and forest degradation;
- Maintenance of the range of environmental services and products derived from forests; and
- Enhanced sustainable livelihoods for local communities and forest-dependent peoples.

Check your progress-3
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

3. List out the importance of global environmentalism.

…………………………………………………………………………
…………………………………………………………………………
…………………………………………………………………………

12.7 LET US SUM UP

In this unit, you have learnt about the meaning of global environmentalism, environmental movement, components of environmentalism and importance of global environmentalism. Thus, this unit would have brought you closer to know the concept of global environmentalism and its importance and its usage in your educational career. This content might play a very important role in your environmental service.

12.8 UNIT- END- EXERCISES

1. Define – Environmentalism.
2. Explain the components of environment.

12.9 ANSWER TO CHECK YOUR PROGRESS

1. Global Awareness of Environmental Consequences: Environmentalism is a combined philosophy and ideology that has led to a social movement with regards to the consequences and impact of human activities on the environment and the need to protect and improve the physical health of the environment. Environmentalism campaigns for preservation, conservation, restoration, and improvement in the health of the environmental.
2. A social movement or an ideology focused on the welfare of the environment, environmentalism seeks to protect and conserve the elements of earth's ecosystem. Environmentalism works to correct the damage as well as prevent future destruction, spawning numerous environmental groups in America and around the world. Even with the combinations of legislation and improved corporate behavior, nonprofit organizations still play a significant role in achieving environmental goals.
3. Environmentalism began as a movement in the 1960s and 1970s. However, humanity's relationship and dependence on the earth for survival has existed since the beginning of time. Many cultures including Native Americans, Aborigines, Africans and South Americans have understood this interconnection with the natural world. Western cultures had a poor understanding of this relationship as they separated themselves from the land through technology and development. Beginning in the nineteenth century, the Industrial Revolution caused many changes; Western people realized their behavior had a negative impact on the environment (Stradling and Thorsheim 1999). In the growing industrial cities of London, New York and Chicago, coal burning factories polluted the air and water while the need for lumber to build factories and homes caused mass deforestation and subsequent destruction of animal life.

12.10 SUGGESTED READINGS

1. Chitamber, JB (1990) Introduction to Rural Sociology. Wiley Eastern Pvt. Ltd, New Delhi.
2. Desai, AR (1978) Rural Sociology in India. Popular Prakashan, Bombay.
3. Sharan, AK (1999) Social Psychology. Commonwealth Publishers. New Delhi

4. Desai, A.R. 1959 Social Background of Indian Nationalism. Popular Prakashan, Bombay.
5. Dube, S.C. 1955. Indian Village. Cornell University Press: New York
6. Bertrand, Alvin Lee, ed. Rural sociology: an analysis of contemporary rural life. McGraw-Hill, 1958.
7. Gillette, John Morris. Constructive rural sociology. Sturgis & Walton Company, 1915.
8. Mukherjee, Ramkrishna 1979. Sociology of Indian Sociology. Allied Publishers, Bombay.
9. Singh, Yogendra. 1979. "On the History of Sociology in India" in Mohini Mullick (ed.) Social Enquiry: Goals and Approaches. Manohar, Delhi.
10. Srinivas, M.N. and Panini 1986. "The Development of Sociology and Social Anthropology in India" in T.K. Oommen & Partha N. Mukherji (eds) Indian Sociology Reflections of Introspections, Popular Prakashan, Bombay. Emergence of Sociology in India.
11. https://study.com/academy/lesson/what-is-ecology-definition-lesson-quiz.html
12. https://www.thegef.org/documents/global-environmental-benefits

UNIT- XIII

CHALLENGES TO POST MATERIALISM AND THE ENVIRONMENT TODAY

Structure

13.1 INTRODUCTION

Post-Materialism is a theory introduced in the 1970's. Post-Materialism is set of values that is stated to have changed, foremost in industrial countries. This shift in values is predicted to lead to changes in attitudes, actions and the social structure, because those who prioritize Post-Materialist values are suggested to think and identify themselves differently. In this thesis, changes in environmental concern, political

participation and gender equality are tested. In addition to this, a modern but controversial extension to the theory is tested, being consumption, to see if Post-Material values have any influence on the way the public consumes. Statistical method is used to see changes over time. The results show that Post-Materialism does not seem to lead to more concern for the environment or new ways of consumption. Political action and gender equality on the other hand seems to have a connection to Post-Materialism, although they are both in decline in some of the most Post-Materialist countries.

13.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Acquires knowledge about post-materialism
- ✓ Understand the challenges to post-materialism
- ✓ Explain the environment today.

13.3 POST-MATERIALISM

To fully understand what it means to have a high level of Post-Materialism, it is necessary to show in what way Post-Materialism is measured. The material used to measure the change in values from Materialism to Post-Materialism, is based on surveys asking people to prioritize a number of statements.

The World Value Survey is an institute that performs independent surveys. The method they use is interviews. The interviews regarding Post-Materialism are introduced with the line "There is a lot of talk these days about what the aims of this country should be for the next 10 years". The respondents are then asked to prioritize between 12 statements, and put the one they find most important first. If the respondents prioritize the statements regarded to be Materialistic high, they are considered to be Materialists. If they prioritize the statements regarded to be Post-Materialistic high, they are considered to be Post-Materialists.

The following six statements are regarded to be Materialistic:

- ✓ Fighting rising prices.
- ✓ Maintaining a high rate of economic growth
- ✓ Maintain a stable economy.
  (These three represent economic security)
- ✓ Maintaining order in the nation.
- ✓ The fight against crime.
- ✓ Making sure that this county has strong defence forces.
  (These three represent physical security)

The following six statements are regarded to be Post-Materialistic:

- ✓ Seeing that people have more say in how things get decided at work and in their community.
- ✓ Giving the people more say in important government decisions.
- ✓ Progress toward a less impersonal, more humane society.
  (These three represent needs of belonging and esteem)
- ✓ Protecting freedom of speech.
- ✓ Progress towards a society where ideas are more important than money.
  (These two represent intellectual needs)
- ✓ Trying to make our cities and countryside more beautiful.
  (This represents aesthetic needs)

Check your progress-1
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.
1. What is post materialism?
…………………………………………………………………………
……………………………………………………………….........................
....

13.4 CAUSES TO POST MATERIALISM

The following four pillars are the main suggested reasons for a change in values from Material values to Post-Material values, according to Inglehart. These are physical security, economical security, education and information (Inglehart, 1977, p 5). Post-Materialism is stated to be most likely to occur in industrial countries, which often have a great deal of these variables in their societal structure.

13.4.1 Physical Security

The first suggested reason for a change of values in industrialized countries is the great amount of physical security the people in these countries have experienced after World War II. One of the premises that the theory of Post-Materialism assumes, is that Maslow's needs satisfaction hypothesis is true. Maslow states that there are five needs, where physiological needs and needs to feel secure are the most basic ones. Without these, people will not be motivated to try to satisfy the three higher needs, being needs of belongingness, esteem and self-actualization. (Maslow, 1954, p 38) This means that physical safety is necessary to satisfy the two lowest steps in the need satisfaction hypothesis, physiological needs and needs to feel secure. The absence of war for the generation after World War II therefore makes them see threats for their lives as distant, and can afford to put greater focus on their quality of life.

Security is still important to them, but relatively speaking it is not as immediately pressing as it used to be for prior generations.

13.4.2 Economical Security

The second reason for a shift towards Post-Materialism is economical security. The reason in countries experience economical security is technological developments, which enable a greater deal of productivity, leading to economic growth, which leads to a wealthier state and a wealthier population. The majority of people in these countries have their basic needs secured. In the selection of cases used in this thesis the Post-Material countries have significantly higher GDP per capita than the Materialist countries (The World Bank, data on GDP per capita 2011). Mostof the people responding to Post-Materialistic values are people from the middle class. Traditionally the working class is the most progressive, but Inglehart suggests that is changing and now the middle class is the most progressive social segment.

13.4.3 Education

Higher education is the third suggested reason for value change. This is because it is a tool to train cognitive skills, and has an effect on the students' political awareness. It creates general cognitive development, informal communication patterns and a certain way of thinking. Informal communication patterns refer to the idea that people with higher education talk to different kinds of people than uneducated, or find other channels of information**.**

13.4.4 Information

Some argue that we are living in an age of information. Inglehart states that the public will be more interested in their surroundings as a causal effect of greater access to information, which is the last reason for a shift from Material values to Post-Material values. This will result in more citizen participation, and what he calls "elite-challenging" activities, as the public will want to have more said in the process of decision-making. The media plays a key role in the distribution of contemporary news and information to the public. It becomes more important to the public to keep itself updated. New techniques make this easier, which adds up to increased awareness among the public.

Check your progress-2

Notes: a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

2. State the causes for post materialism

……………………………………………………………………………

……………………………………………………………………….........................

....

13.5 CHALLENGES TO POST-MATERIALISM

13.5.1 Social Changes

The theory of Post-Materialism emphasizes changing values. But if values change, other changes could occur as a result of this. This is not the main focus of the theory, but it suggests some social changes. Inglehart states that there is a full set of changes going on; among others he mentions gender roles, life-styles, ecology, economy, politics and morals.

Erich Fromm is a sociologist concerned with what aspects affects changes in behaviour. According to him, the modern definition of "activity" is purposive behaviour that seeks to result in socially useful changes. Alienated activity is when these changes happens incident to external and internal forces, while non alienated activity means that one perceive himself as a subject of the activity, and hence doing it on purpose. To me, the values prioritized by Post-Materialists, such as more say in decision-making, ideas count and freedom of speech, indicates that non alienated activity in society should be important to them, which could lead to different forms of social changes.

I will here concentrate on changes in attitudes for concern for the environment relative to the concern for the economy. Next I will look at the way people participate politically by measuring the amount of political action. The social structure, gender equality, will be checked for by looking at the differences in pay. In the next chapter I will in addition to this bring up possible related change in life-styles, by looking at consumption patterns.

13.5.2 Concern for the Environment

In the 1960's, environmental issues started to slowly become concerns in the consciousness of peoples' minds, as a concern for the future of humanity. Since the 1980's, a rapid growth in environmental groups have emerged and have become a significant force in most industrialized countries. Post-Materialists are identify themselves as cosmopolitans, and they are more involved in political issues. This suggests they could be concerned for global challenges, such as the environment.

Post-Materialist could get more involved in is concern for ecology and protection of the environment. To test this, data compiled by the institute World Value Survey have been used. In the survey people have been asked to chose the statement that comes closer to their own opinion. (1) Protecting the environment should be given priority, even if it causes lower economic growth and some losses of jobs. Or (2) Economic growth and creating jobs should be the top priority, even if the environment suffers to some extent. This means that lower numbers on the scale indicates more concern for the environment.

The Materialist countries have curves with a rather even development ending in values. Taiwan have a development of attitudes towards economic growth, while Russia and China have pretty even attitudes over time along with Albania that only have a slight development towards protection of the environment. The most Post- Materialist

countries stay in the range of 13.21 and 13.35 in their latest surveys, except for Andorra that have larger numbers. Of the Post-Materialistic countries, Canada, Switzerland and Norway are getting increasingly concerned for the environment, while Sweden goes in the opposite direction.

No significant difference in attitudes can be seen between the clusters through this indicator. The trend over time only indicates that the environment it becoming slightly more important in the Post-Materialist countries.

13.5.3 Political Participation through Action

Post-Materialists put high value on “Giving the people more say in important government decisions” and “Protecting freedom of speech”. Since these are seen as important by Post-Materialists, it is suggested that they would be more interested in participating politically than Materialists. Existing institutions change slowly at the same time as a new set of values occurs, so one predicted effect of Post-Materialism is that new political movements and organizations will form, in order for these people to be able to express their opinions, along with other forms of protest activity.

The data used to test these forms of action is from World Value Survey and shows the amount of political action. The respondents have been asked how many of the following political actions they actually have carried out: signing a petition, joining in boycotts, attending lawful demonstrations, joining unofficial strikes or occupying buildings or factories. The number of these five statements that the respondents claim they have participated in, then rank them on a scale from 0 to 5.

The most previous data for the Materialist countries have results between 0.25 and 0.47, while the most Post-Materialist countries have results between 0.86 and 13.65. This indicates that these forms of political actions are more frequently occurring in Post-Material countries. The amount of political action therefore seems to follow the predicted pattern. In the diagram of the Materialist countries Albania and Hungary have a decrease in political action, while Russia have a slight increase. In the Post-Material countries only Sweden have an increase, while the political action in Canada, Norway and Germany is decreasing.

One explanation to an early increase in political participation through action is the higher level of education, one of the suggested reasons for Post- Materialism. This is suggested to create a shift in the distribution of political skills, which creates an increasing potential for political participation (Inglehart,1977, p 367). Therefore it is unexpected that the trend over time is showing a decline in political action in three out of four Post-Materialist countries. Education is suggested to enhance feelings of citizen duties. This, in combination with cognitive skills which makes the public confident about their understanding of the political system is suggested as an alternative explanation to the expected increase in traditional political participation in the most Post-Materialistic countries. Interest in politics is said to consequence in increased election participation, the traditional channel for political participation (Denny and

Doyle, 2008, p 291-293), and could be expected to do the same for these alternative ways of participation too.

Media is contributing with a large part of the updates of what is doing on around locally, and in the rest of the world. According to Valenzuela the information media distribute is the same information most people repeat when asked about a specific political issue, which they have not reflected on to any extent (Valenzuela, 2009, p 757). To organize through alternative channels, such as political action, is often a sign of stronger engagement though. Hence it is strange that the trend is going down in the Post-Materialist countries.

13.5.4 Gender Equality

Another issue Post-Materialism are suggested to be concerned about is gender equality. New life-styles have emerged, and this could lead to a structural change in gender equality. It is hard to give a fair picture of how equal a society is in comparison to another one, in terms of gender equality. Different indicators one can consider are percent of school attendances by males and females, attitudes in which of the genders that makes a better boss or percentage of women in the parliament. Here, the indicator used is data on the changes over time in pay inequalities across industrial categories in the manufacturing sector. The data is compiled by the United Nations International Development Organization. (QoG code book, "utip_ipi" p 193-194) Larger numbers means greater pay inequality.

An explanation for lower pay for women is that employers undervalue women's work, put them on lower positions and hence they get lower pay. However, some employers argue that the differences in pay are due to other factors than the gender of the employees, and that the pay was agreed upon as a result of bargaining with the relevant labour union. According to Davies, it is unlawful in some countries to pay men and women differently for the same work if the employer alone decides the pay, and if labour unions were involved, the responsibility to pay proper still remains on the employer (Davies, 1989, p 63). Another reason for increased pay inequalities could be an increase in performance pay, which provides a channel for individual pay setting which seems to favour male employees. This too is an issue addressing gender equality, though.

13.5.5 Related Change: Consumption

Inglehart states that in the long run, the public will place less emphasis on material consumption and security, and instead concentrate on humanistic and aesthetic goals (Inglehart, 1977, p367). Less emphasis is not the same as reduction in consumption. But since the economy is less prioritized by Post-Materialists, it should not be as important to them to try to gain self-esteem by showing off the goods they own. Self-expression and to make a change is instead what is prioritized by Post-Materialists, and therefore they might be more aware in the way they consume. But could this lead to a decline in consumption? It has been argued that Ingleharts theory on Post-Materialism is not applicable to consumption,

since a high level of Materialism is about putting emphasis on physical and economical security, not about owning property. There is a distinction between Post-Materialism and Anti-Materialism. Post-Materialism is about values, while Anti-Materialism is a perspective which refuses to put value on material things (Moors, 2003, p 396-397).

I do not mean to suggest that Post-Materialism should equal Anti-Materialism. Ideas are more important than money for Post-Materialists. This is predicted to manifest itself though changes in lifestyles, and I suggest that consumption is a possible part of one's life-style that might be affected by Post-Materialist values. This is not because Post-Materialists would refuse to put any value on material things, but because they might reflect more about the way they consume. If Post-Materialists is manifested through political participation, concern for the environment and gender quality, a modern interpretation of the theory might be applicable to consumption too.

Lifestyles and social practices goes hand in hand. Values and practices does not necessarily do so, though. People that state that it is their intention to act in a sustainable way may still not do so at all times and under all circumstances. For example, one can be concerned for the environment and still not change their lifestyle in accordance to this attitude. (Spaargarden, 2003, p 689)

First, I will see if the amount of consumption is lower in the Post-Materialist countries than in the Material ones, which is the first part of my hypothesis. Second, I will see if the way people consume have changed towards more sustainable consumption from an environmental perspective, which is the second part of my hypothesis.

13.5.6 Sustainable Consumption

Consumption can be seen from an environmental, global approach too. In that context, daily routines, consumption behaviour and lifestyles are important components which needs a certain structure to promote sustainable practices (Spaargarden, 2003, p 687).

Another way to indicate how conscious the public is about their consumption is to measure in which ways they try to convert to sustainable consumption, which remains a global challenge. National Geographic have published annual Greendex surveys since 2008, carried out by GlobeScan, a company that performs qualitative and quantitative analyses and surveys (Kritski, 2012). In these surveys, 17 000 respondents per country have participated to increase the reliability of the data (National Geographic, “Greendex 2012” p 12). Greendex ranks how environmentally sustainable different countries' consumption and behaviour is according to a number of indicators (National Geographic, “Greendex 2012” p 2). National Geographic uses a selection of 17 countries. Three of these match this thesis' selection of Materialistic countries (China, Hungary and Russia), andthree match this selection of Post-Materialistic countries (Germany, Sweden and Canada). Of these, the Post-Materialist countries have the

least sustainable behaviour in the overall ranking, which includes all of the variables measured. When asked of how guilty they are about their impact on the environment, it is surprisingly the countries with the lighter green footprints that feel the most guilty. Here, China feels the most guilt while Germany doesn't feel very guilty at all. Still it is according to the same survey the people in the least environmentally friendly countries that feel most able to help improve the environment as individuals. (National Geographic, "Greendex 2012" p 4-5) Environmentally friendly consumer behaviour is here measured in areas related to transportation, household energy and resource use, consumption of food and everyday consumer goods as well as what people are doing in order to minimize the impact their activities have on the environment. (National Geographic, "Greendex 2012" p 2-3) The two sub-variables interesting for the testing of change in consumption patterns between the Post-Materialistic and Materialistic countries are foremost consumption of food and goods. In the table below the results from the two sub-variables goods and food are presented. The scores are calculated from a number or indicators, and to the left of that the change between 2008 and 2012 is presented in percent.

The consumption of goods does not change notably in any of the countries in the selection, except for in Russia, where the increase is higher. The rest of the countries all have increase in environmentally friendly consumption in this area, on between 13.2 and 3.3 percent, except for Sweden that have a decrease for unknown reasons. Of the two Post-Materialist countries, Sweden and Germany prefer reusable products more than the other nationalities. The Post-Materialist countries do re-cycle more than the others. A reason for this can be regulations and facilitating infrastructure. Among the Materialist countries, the Chinese are the most likely to by second-hand. Environmentally friendly products are becoming more popular, except for in Russia. (National Geographic, "Greendex 2012" p 10-11) The Materialist countries have the highest scores in the index of goods consumption, which means they leave the smallest green footstep.

In the index concerning food consumption, all of the countries have gotten better from an environmental perspective, except for Canada which have had a negative development. It is not clear why the development Canada have been negative. How often the respondents eat meat is regarded, which is common except for in Germany and Hungary. Russians, Chinese and Germans consume locally grown food most frequently. But the Germans also consume a lot of bottled water, more than any other country in the sample. (National Geographic, "Greendex 2012" p 8-9) It is strange that the development is not more sustainably increasing in the Post-Materialist countries, since there are more environmentally friendly options on the European food and goods markets nowadays (Spaargarden, 2003, p 694).

Two out of three of the Post-Materialist countries in the cluster used here are European. This means the option is provided to the public, but they do not seem to chose it more in this area as a consequence to this. Green consumer behaviour is widely seen as socially desirable. People seem to

act more environmentally friendly than people think they do (National Geographic, "Greendex 2012" p 11). Barriers to sustainable consumption are lack of trust of companies' environmental claim and a lack of leadership that would make sustainable consumption a pressing issue (National Geographic, "Greendex 2012" p 2).

Another reason stated to influence the amount of environmentally friendly consumer behaviour is the possibilities offered to the public to do so. According to Spaargarden, a combination of actors willing to act sustainable and a structure made to facilitate such a behaviour are both needed for a change in consumer behaviour to change notably. The lifestyle of the actors play a key role in the change, at the same time as the system needs to provide the tools for a changed lifestyle (Spaargarden, 2003, p 689).

✓

13.6 ENVIRONMENT TODAY

13.6.1 Environment

The sum total of all surroundings of a living organism, including natural forces and other living things, which provide conditions for development and growth as well as of danger and damage. The word environment is derived from the French verb 'environer' which means to 'encircle or surround.' Thus our environment can be defined as the physical, chemical and biological world that surround as well as the complex of social and cultural affecting an individual or community. This broad definition includes the natural world and the technological environment as well as the cultural and social context that shape human lives. It includes all factors living and non living that affect an individual organism or population at any point in the life cycle. Set of circumstances surrounding a particular occurrence and all the things that surround us.

It is essentially a multidisciplinary approach and its components include biology, geology,chemistry, physics, engineering, sociology, health sciences, anthropology, economics, statistics and philosophy. .Environmental science is a Interdisciplinary subject which deals with each and every aspect of life i.e. related with us. It requires the knowledge of various other subjects like biology, chemistry, physics, statistics, micro-biology, bio-chemistry, geology, economics, law, sociology etc Environmental science integrates physical and biological sciences, to the study of the environment, and the solution of environmental problems. Environmental science provides an integrated, quantitative, and interdisciplinary approach to the study of environmental systems. Related areas of study include environmental studies and environmental engineering. Environmental studies incorporates more of the social sciences for understanding human relationships, perceptions and policies towards the environment. Environmental engineering focuses on design and technology for improving environmental quality in every aspect.

Environmental scientists work on subjects like the understanding of earth processes, evaluating alternative energy systems, pollution control and mitigation, natural resource management, and the effects of global climate change. Environmental issues almost always include an interaction of physical, chemical, biological and socio-cultural processes. Environmental scientists bring a systems approach to the analysis of environmental problems.

Environmental science came alive as a substantive, active field of scientific investigation in the 1960s and 1970s driven by (a) the need for a multi-disciplinary approach to analyze complex environmental problems, (b) the arrival of substantive environmental laws requiring specific environmental protocols of investigation and (c) the growing public awareness of a need for action in addressing environmental problems. . It is a relatively new field of study which has evolved from integrated use of many disciplines.. It creates awareness and understanding of environmental concepts which may be scientific, social and ecological systems thereby providing a platform for solution to various environmental problems

13.6.2 Environmental Issues Today

Our planet is plagued by environmental problems that deplete natural resources and strain livelihoods, many of which are exacerbated by poor industrial practices. If left unchecked, environmental problems negatively impact businesses both directly, as in supply chain disruptions, and indirectly, as in health hazards that lead to loss of man-hours and efficiency. Following are some common environmental issues that need to address to ensure sustainability and long-term viability.

13.6.2.1 Issues pertaining to Population

It’s no secret that the planet faces serious environmental concerns from water and air pollution to deforestation. While the causes are complex, one significant contributor to the problem is population growth. Understanding the relationship between population growth and environmental issues may be the first step toward identifying real solutions

More people require more resources, which means that as the population increases, the Earth’s resources deplete more rapidly. The result of this depletion is deforestation and loss of biodiversity as humans strip the Earth of resources to accommodate rising population numbers. Population growth also results in increased greenhouse gases, mostly from CO_2 emissions. For visualization, during that same 20th century that saw fourfold population growth, CO_2 emissions increased twelvefold. As greenhouse gases increase, so do climate patterns, ultimately resulting in the long-term pattern called climate change.

The Biggest Impacts

The use of resources and the impact of environmental issues are not equal around the globe. People in developed countries require substantially more resources to maintain their lifestyles compared with people in developing countries. For example, the United States, which contains 5 percent of the world's population, currently produces a full 25 percent of CO2 emissions.

People in developing countries tend to feel the impacts of environmental problems more acutely, especially if they live in coastal areas directly affected by sea level rise and the extreme weather events that accompany climate change. The most vulnerable populations also experience decreased access to clean water, increased exposure to air pollution and diseases – which may result from decreased biodiversity – and may feel the impact more immediately as local resources including plants and animals deplete.

While the interconnected problems of population growth and environmental issues seem overwhelming, it is important to remember that humans can make changes that positively impact the planet. One good starting point is understanding and applying the concept of sustainability, which is the opposite of resource depletion. Sustainability describes a model of resource usage in which the current generation uses only the resources the Earth provides indefinitely (like solar or wind power instead of burning fossil fuels) to ensure that future generations inherit resources.

13.6.2.13.1 Land Degradation

There are many examples of human failure to use land resources sustainably. Deforestation occurs when humans clear forests to use the land either for agriculture or for habitation. Consequently, forest cover dwindles significantly, leading to soil erosion and extinction of plant species. Land animals also decline in numbers and even face extinction due to human expansion that encroaches on their natural habitat and limits their ability to spread geographically.

13.6.2.13.2 Air Pollution

One of the biggest environmental impacts of human activities is air quality. The transportation sector contributes heavily to air pollution because most forms of transportation, including cars, planes and ocean vessels, use fossil fuels. When burned, fossil fuels release carbon dioxide and other greenhouse gases into the environment.

In addition, the manufacturing industry grows exponentially with the expansion of the human population. Manufacturing plants emit carbons and sulfurs that do not occur naturally in the environment, causing an

imbalance in the quality and composition of air. Some air pollutants deplete the ozone layer and expose the Earth to dangerous radiation from the sun.

13.6.2.13.3 Water Contamination and pollution

Human intervention in the environment also jeopardizes the supply and flow of clean drinking water. Activities like waste disposal from residential, commercial and industrial areas, oil spills and runoff from agriculture all contaminate bodies of water. The direct deposit of pollutants into lakes, rivers, seas and streams and indirect runoff of hazardous substances during the rainy seasons both impact water sources. Another environmental issue impacting water systems is overfishing, which causes a reduction in diversity of marine life.

Sources of water pollution

There are two main sources of water pollution in a water body:

i. Point sources ii. Non- point sources

The total waste load in a water body is represented by the sum of all point and non- point sources. Pollution of water resources can be caused by one or more of the sources: i) atmospheric dissolved gases ii) weathering of soil and rock minerals iii) decomposition of animals and vegetable materials.

13.6.2.13.4 Climate Change

Human activities in the environment interfere with the planet's natural balance, making the Earth’s climate less stable and predictable. Climate change brings abnormal occurrences such as unprecedented flooding; increased numbers of storms, hurricanes and typhoons; fiercer brush fires; and most notably tsunamis, which are uncommon in the Earth’s recent history. Phenomena such as rising sea levels, unseasonably high temperatures and drought hint toward an environment that cannot take much more negative human impact.

13.6.3.2 Issues Pertaining to Water

Water pollution is emerging as a threat to all mankind. The term “water quality” is intimately related to water pollution. Water quality refers to the physical, chemical and biological characteristics of water. Water is indispensable for our life. Water is said to be polluted, when it is hanged in its quality and composition directly or indirectly by man’s activity so that it becomes less suitable for drinking, domestic, agricultural or any other purpose. Soil erosion, digging of minerals from rocks, decaying of organic matter are natural sources of water pollution. Water pollution is the

contamination of water bodies (e.g. lakes, rivers, oceans, aquifers and groundwater), very often by humanactivities.

Water pollution occurs when pollutants (particles, chemicals or substances that make water contaminated) are discharged directly or indirectly into water bodies without enough treatment to get rid of harmful compounds. Pollutants get into water mainly by human causes or factors.

Water pollution is the second most imperative environmental concern long with air pollution. Any change or modification in the physical, chemical and biological properties of water that will have a detrimental consequence on living things is water pollution. The water pollution problem covers over 70% of the Earth's surface. It is a very important resource for people and the environment. Water pollution affects drinking water, rivers, lakes and oceans all over the world. In many developing countries, it is usually a leading cause of death, by people drinking from polluted water sources.

Water pollution can be studied under the following heads:

13. Medium in which it occurs (ground water, surface water)
2. Habitat (lakes, open seas
3. Type of pollutants (bacterial, metallic, thermal and radicative)

Water pollution can be defined in a number of ways,

13. Water pollution is the presence of any foreign substance (organic, inorganic, biological and radiological) in water which tends to degrade the quality so as to constitute a hazard, or impairs the usefulness of water
2. Courts of law define water pollution as "any impairment of water quality that makes unsuitable for beneficial use.

13.6.3.3 Issues Pertaining to Sanitation

Sanitation is the hygienic means of promoting health through prevention of human contact with the hazards of wastes as well as the treatment and proper disposal of sewage wastewater. Hazards can be physical, microbiological, biological or chemical agent of disease. Sanitation generally refers to the provisions of facilities and services for the safe disposal of human urine.

Inadequate sanitation is a major cause of disease world-wide and improving sanitation is known to have a significant beneficial impact on health both in households and across communities. The world sanitation also refers to the maintenance of hygienic conditions, through services such as garbage collection and waste water disposal. The sanitation technology in urban areas is the collection of waste water in rivers; its treatment is wastewater treatment plant for reuse or disposal in rivers, lakes or the sea.

The poor sanitation lead to many diseases such as trachoma and soil transmitted Helminthiases, diarrhea. Children suffering for diarrhea are more vulnerable to become underweight. Sanitation is a serious issue that is affecting most parts of the world especially the developing countries. On

the global scale, the most affected are children who in most cases lose their line due to diseases caused by poor sanitation.

In many suburban and rural areas households are not connected to sewers. They discharge their water waste into septic tanks or other type of on-site sanitation. On-site systems include drain fields which require significant area of land. The reuse of untreated waste water in irrigated agriculture is common in developing countries. Ecological sanitation is sometimes presented as a radical alternative to conventional sanitation systems. Ecological sanitation is based on composting or vermin composing toilets where an extra separation of urine and feces at the source for sanitation and recycling has been done. The importance of the isolation of waste lies in an effort to prevent diseases which can be transmitted through human waste, which afflict both developed countries as well as developing countries to differing degrees. It is estimated that up to 5 million people die each year from preventable water-borne diseases; as result of inadequate sanitation and hygiene practices.

13.6.3.4 Issues pertaining to Pollution

We use the word "pollution" all the time, and the word carries certain connotations, but most of us would have difficulty in defining the term specifically. Pollution is the introduction by man, directly of indirectly, of substances or energy into the environment to such a degree that environmental conditions change.

Pollution is the introduction of contaminants into the natural environment that cause adverse change. Pollution can take the form of chemical substances or energy, such as noise, heat or light. Pollutants, the components of pollution, can be either foreign substances/energies or naturally occurring contaminants.

Pollution is the act of introducing harmful substances to the environment that results in harming the natural surroundings. Substances that cause pollution are referred to as pollutants. These polluting substances are so diverse and they include chemical products, waste material, light, heat, and noise among others.

Pollution in all forms is a major environmental issue in India. Any undesirable change in the environment, air, water, land, soil, etc. can be termed as pollution. These changes could be in the physical, chemical or even biological changes. The agents that bring about or cause this pollution are called pollutants.

In India, there are many laws that help in curbing pollution. These laws are intended to protect the environment as well as improve its quality. One such act is the Environment (Protection) Act, 1986.

The types of pollution are,

Air Pollution

When the atmosphere is filled with toxic gases released as result of industrial or other economic activities, it results in polluting the atmosphere and the air in the environment. This is nothing but air pollution.

Water Pollution

With the natural water resources' depleting day by day, water is a scarce commodity. But, even in these times, the water sources are polluted by pollutants from various sources, making them unfit for human consumption.

Garbage Pollution

When we do not adhere to proper waste disposal mechanisms, waste accumulates, causing garbage pollution. So the only way to address this issue is to ensure a proper waste disposal system that does not contaminate the environment.

13.6.3.5 Issues Pertaining to Energy

Energy is an essential component of all development programmes. Without energy, modern life would cease to exist. We need energy to maintain physical comfort in much of the world, to win and manufacture useful materials and artefacts, for transport, for communications, for agriculture and for industry in general.

Energy can be made available by harnessing natural energy flows such as moving water, solar radiation and wind, and mainly by using fuels such as wood, coal, oil, natural gas and uranium. However, the harnessing and utilization of energy is associated with worrying problems, namely, depletion and environmental damage.In this lesson, we examine these environmental problems.

The Problem of Depletion

Energy resources all over the world are getting depleted. Over 90 percent of all the energy used in the entire world comes from fossil fuels (coal, oil and gas) that are exhaustible. Millions of years ago, organic matter (the remains of plants and animals) decayed and built up into thick layers. Over time, mud and soil that covered the organic matter changed into rock and trapped the organic matter beneath. Pressure and heat changed some of the organic matter into coal, some into oil (petroleum), and some into natural gas. Currently, the world uses in one year an amount of fossil fuels that took nature roughly one million years to produce. At our present rate of consumption, and assuming no population increase, all the known oil reserves could be exhausted by the middle of this century and natural gas by 2070. Coal supplies will last much longer – for roughly 200 years at current consumption rates. We must however note that new deposits of fossil fuels continue to be discovered from time to time.

Energy-Related Environmental Damage

Apart from the problem of energy resources getting depleted, energy harnessing and utilization cause an immense amount of environmental damage. There are environmental problems associated with the use of almost all forms of energy. In this section we examine some problems associated with the use of fossil fuels, fuel wood, uranium, hydro power plants and wind energy.

Problems Associated with the Use of Fossil Fuels

Global warming: Global warming refers to the gradual increase in the average temperature of the Earth's surface and its atmosphere which has been attributed to the accumulation of greenhouse gases. The main greenhouse gases are carbon dioxide (CO2), methane (CH4), water vapour, nitrogen oxides (NOX) and chlorofluorocarbons (CFCs). All the greenhouse gases except CFCs are naturally produced and their concentrations in the atmosphere are increasing due to human activities.

CO2 is the main greenhouse gas, accounting for more than 50 percent of the global temperature rise. This has occurred because of the burning of fossil fuels and wood products.

Methane may be produced naturally when wet organic matter decomposes under bacteria action in the absence of oxygen. Such decompositions could take place in landfills, swampy/paddy fields, digestive tracks of ruminants and termites and septic tanks. Man induced methane emissions may come from leaks in natural gas distribution systems, leaks of refinery gases in petroleum reefing and coal mining.

The burning of fossil fuels also produces significant amounts of nitrous oxides. Rise in mean (average) global temperature,Rising sea levels, Occurrence of weather extremes, Shifting of vegetative zones

Acid rains: Acid rains are caused by the release of sulphur dioxide (SO2) and oxides of nitrogen (NOx) when fossil fuels burn. The oxides combine with water vapour in the air to form acids, which return to the ground as acid rain. It is important to note that acidified clouds could travel great distances before releasing the acid rain.

The problems posed by acid rains include corrosion of the built environment, soil degradation, water pollution and depletion of forests. Corrosion of the built environment. Acids are corrosive. Acid rains corrode the built environment including buildings, statues and metal bridges.

Soil degradation: In soil, acid rains combine with nutrients needed by plants to form compounds that may be of little or no use to plants. Thus, acid rains remove useful nutrients that support plant life. This could adversely affect agriculture.

Water pollution: Water bodies are polluted when acid rains dissolve toxic substances such as aluminium and mercury and deposit them in water bodies including underground water. Acid rains also make water bodies acidic. Acid rains could cause lakes, ponds and rivers to loose aquatic. For example, it has been observed that some lakes in Europe have become so acidic that they can no longer support life.

Forest depletion: Removal of useful nutrients when acid rains combine with them could adversely affect plants. Additionally, acid rains attack trees more directly by causing dead spots on the leaves and barks of trees. This reduces the ability of the plants to make their own food through photosynthesis. The dead spots also make the trees vulnerable to insect infestations.

Dangers posed by leaded fuels: The oil industry adds lead to petrol (gasoline) to help engines run more smoothly. Vehicles that burn leaded gasoline pour out leaded fumes that contaminate the air. The World Health Organisation (WHO) has established that smoke from the combustion of leaded fuels in vehicles causes cancer and high blood pressure in adults and in children it impairs mental development, reduces intelligence thus hindering learning ability and causes behavioural disorders.

Oil spills: This is leakage of fuel oil from storage vessels, oil tankers, pipelines, tanker trucks or other vessels used for transporting fuel oil. Oil spills seriously damage the land, vegetation, and water bodies, including the oceans. Fuel oil is poisonous if ingested by animals. In addition, spilled oil damages the feathers of birds or the fur of animals, often causing death.

Gas leaks and explosions: Gas leaks and explosions sometimes accompany the harnessing and utilization of fossil fuels especially in the coal mines and storage plants. The explosions are sometimes accompanied by fire outbreaks. Gas leaks and explosions have claimed several lives, caused severe injuries to people and destroyed property worldwide.

Water pollution caused by poorly managed coal mines: Excavated areas that have been strip mined for coal but are not filled and revegetated cause water pollution as surface water runoff from the mined area can flush sediments and sulphur-bearing compounds into nearby streams and rivers. This could endanger human life, plant and wildlife communities.

Air pollution: Emissions from vehicles, thermal power plants and factories contain unburned hydrocarbons, particulates, carbon dioxide, carbon monoxide and oxides of nitrogen and sulphur that contribute to the lowering of the quality of air. These substances in the air could irritate the eyes, throat and the lungs.

Problems Associated with the Use of Uranium: Uranium is used in nuclear power plants (NPP) to produce electricity. During the splitting of atoms (nuclear fission) of uranium within a nuclear reactor, large amounts of heat are produced. The heat from the reactor is used to produce steam. The steam turns a turbine which in turn, drives an electric generator to produce electricity.

Mutation and malformations: genetic changes may appear in later generations of both plants and animals such as Miscarriages, Premature births, sterility, Cancer, Malfunctioning of certain body organs Radiation sickness and possible death - Large amounts of radiation delivered in a short span of time damage both bone tissue and blood cells, causing radiation sickness and death.

Apart from the radiation-related problems, nuclear power plants pose thermal or heat pollution as they release much more heat than conventional thermal power plants. To cool its apparatus a nuclear power plant sucks large amounts of cool water from nearby water body such as a river or lake, and then sends the water back warm. With the rising temperature of the river or lake, the oxygen content of the water is reduced. Not only can this kill the aquatic animals in the river or lake, but often it fosters the growth of algae. Decaying algae consume more oxygen. Soon the water may begin to smell and taste bad.

Hydropower plant: The environmental and economic impact of building a hydro-plant on a local river can be catastrophic. The construction of dams leads to the loss of terrestrial habitats through flooding and the displacement of people often from some of the world's most fertile land. Dams also destabilize freshwater ecosystems worldwide. For example, a significant proportion of the world's freshwater fish are now endangered or extinct as a result of the construction of dams. Also affected are oceanic fish such as salmon, which can be blocked in their attempt to swim back upstream to spawn. Even the generally held view that hydropower is pollution free is now in doubt. This is because rotting organic matter that ends up in the dams releases large amounts of greenhouse gases, mainly methane, into the atmosphere. There is also the social cost. The construction of dams is also accompanied by increase in water-borne diseases like bilharzias.

Wind Energy: The major problem associated with the harnessing of wind energy is noise pollution. The noise generated from wind farms can be a nuisance. People living close to wind farms have complained about the whamming noise. Additionally, there are other problems that are relatively less serious. Among them is visual pollution. Wind turbines erected on hill sides distort the natural beauty of the hills. Wind mills cause TV and radio interference. There could also be damage or injury from possible mishaps in cases where there is danger that rotors might break or shed ice. The blades of the rotating rotors hit and kill flying birds.

Check your progress-3

Notes: a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

3. State the types of pollution

………………………………………………………………………
………………………………………………………………………………
………………………………………………………………………………

13.7 LET US SUM UP

In this unit, you have learnt about the meaning of post materialism challenges to post materialism and the environment today. Thus, this unit would have brought you closer to know the concept of post-materialism, challenges to post-materialism and the environment today. This content will play a very important role in your future environmental services.

13.8 UNIT- END- EXERCISES

1. Explain the challenges to post materialism.
2. Explain the environment today.

13.9 ANSWER TO CHECK YOUR PROGRESS

1. To fully understand what it means to have a high level of Post-Materialism, it is necessary to show in what way Post-Materialism is measured. The material used to measure the change in values from Materialism to Post-Materialism, is based on surveys asking people to prioritize a number of statements.

2. **Physical security**

   The first suggested reason for a change of values in industrialized countries is the great amount of physical security the people in these countries have experienced after World War II. One of the premises that the theory of Post-Materialism assumes, is that Maslow's needs satisfaction hypothesis is true.

   Economical security

   The second reason for a shift towards Post-Materialism is economical security. The reason in countries experience economical security is technological developments, which enable a greater deal of productivity, leading to economic growth, which leads to a wealthier state and a wealthier population.

   Education

   Higher education is the third suggested reason for value change. This is because it is a tool to train cognitive skills, and has an effect on the students' political awareness. It creates general cognitive development, informal communication patterns and a certain way of thinking.

Information
Some argue that we are living in an age of information. Inglehart states that the public will be more interested in their surroundings as a causal effect of greater access to information, which is the last reason for a shift from Material values to Post-Material values.

3. **Air Pollution:** When the atmosphere is filled with toxic gases released as result of industrial or other economic activities, it results in polluting the atmosphere and the air in the environment. This is nothing but air pollution.
   Water Pollution: With the natural water resources' depleting day by day, water is a scarce commodity. But, even in these times, the water sources are polluted by pollutants from various sources, making them unfit for human consumption.
   Garbage Pollution: When we do not adhere to proper waste disposal mechanisms, waste accumulates, causing garbage pollution. So the only way to address this issue is to ensure a proper waste disposal system that does not contaminate the environment.

13.10 SUGGESTED READINGS

1. Chitamber, JB (1990) Introduction to Rural Sociology. Wiley Eastern Pvt. Ltd, New Delhi.
2. Desai, AR (1978) Rural Sociology in India. Popular Prakashan, Bombay.
3. Sharan, AK (1999) Social Psychology. Commonwealth Publishers. New Delhi
4. Desai, A.R. 1959 Social Background of Indian Nationalism. Popular Prakashan, Bombay.
5. Dube, S.C. 1955. Indian Village. Cornell University Press: New York
6. Bertrand, Alvin Lee, ed. Rural sociology: an analysis of contemporary rural life. McGraw-Hill, 1958.
7. Gillette, John Morris. Constructive rural sociology. Sturgis & Walton Company, 1915.
8. Mukherjee, Ramkrishna 1979. Sociology of Indian Sociology. Allied Publishers, Bombay.
9. Singh, Yogendra. 1979. "On the History of Sociology in India" in Mohini Mullick (ed.) Social Enquiry: Goals and Approaches. Manohar, Delhi.

10. Srinivas, M.N. and Panini 1986. "The Development of Sociology and Social Anthropology in India" in T.K. Oommen & Partha N.

Mukherji (eds) Indian Sociology Reflections of Introspections, Popular Prakashan, Bombay. Emergence of Sociology in India.
11. https://study.com/academy/lesson/what-is-ecology-definition-lesson-quiz.html
12. https://www.thegef.org/documents/global-environmental-benefits

UNIT- XIV

TECHNOLOGY AND SOCIETY, ENVIRONMENTAL JUSTICE

Structure

14.1 INTRODUCTION

Technology is very important aspect of human condition as it provides cloths, shelters, foods, transportations etc. Technological determinism is the theory that technology is an autonomous force that changes society and it is also the key force to our society. This provides explanations for many changes that can be observed in society, and it has a very simple cause/effect form. However, this theory is false, if you think you have an instance, it means you are looking at just one part of a much more complex situation, and ignoring the complex social network that supports the technology.

However, technology is a major and really the main cause of social change as a lot of changes in the society is largely caused by technology but within human control. The computer and email technology has reduced the period it takes to transmit messages between two parties or more as emails sent electronically can be received immediately, thereby saving lots of man hours, and consequently even reducing human and vehicular traffic as people don't need to sometimes travel to send and receive documents.

14.2 OBJECTIVES

After going through the unit you will be able to;

- ✓ Acquires knowledge about Technology and Society
- ✓ Understand the uses of technology to social change
- ✓ Explain the environmental justice, policy and action.

1.3 MEANING OF TECHNOLOGY AND SOCIETY

14.3.1 Technology

Merriam-Webster says technology is: "Application of knowledge to the practical aims of human life or to changing and manipulating the human environment. Technology includes the use of materials, tools, techniques, and sources of power to make life easier or more pleasant and work more productive. Whereas science is concerned with how and why things happen, technology focuses on making things happen."

When you think of the word 'technology', what comes to mind? It might sound like something from a sci-fi show, or something that has to run on electricity. Technology makes us think of the very complex, but energy doesn't have to be complex.

Technology is the use of scientific knowledge for practical purposes or applications, whether in industry or in our everyday lives. So, basically, whenever we use our scientific knowledge to achieve some specific purpose, we're using technology. Well, there is slightly more to it than that. Technology usually involves a specific piece of equipment, but

that equipment can be incredibly simple or dazzlingly complex. It can be anything from the discovery of the wheel, all the way up to computers and MP3 players.

The role and impact of technology in both our personal and working lives is ever growing. Understanding how people shape technology and how technology shapes people's interactions with each other and the natural world is important not only for those who research, develop and implement new technologies but also for all those people and organisations that have to use those technologies in their working and personal lives.

Technology is not a neutral word. Different people will give it different meaning depending on their viewpoint and context.

Members of the Faculty of Technology are no different but for many years we have adopted one particular definition of technology that reflects our own aims and objectives:

Technology concerns itself with understanding how knowledge is creatively applied to organised tasks involving people and machines that meet sustainable goals. There are three important aspects to this definition:

14. Technology is about taking action to meet a human need rather than merely understanding the workings of the natural world, which is the goal of science. The invention of the microscope was driven by a need to explore the world of the small, beyond our unaided vision. This technological solution to a long standing problem has in turn enabled us to understand more the workings of the world which in turn has led to the development of more technologies.

2. It uses much more than scientific knowledge and includes values as much as facts, practical craft knowledge as much as theoretical knowledge. The iPod is an example of where the physics of making a small device carry so much music is married with creative design to make an iconic must have accessory.

3. It involves organized ways of doing things. It covers the intended and unintended interactions between products (machines, devices, artifacts) and the people and systems who make them, use them or are affected by them through various processes. Many people like to drink coffee, often in a coffee shop. That coffee may have come from trees which have been bred specifically for increased yields that support a small farmer and his family but that requires pesticides that were developed and manufactured in another country. The harvested coffee beans will themselves be transported around the world, to be processed and placed in packages which are are distributed to shops that then make the cup of coffee in a polystyrene cup that was manufactured for the purpose but which then needs to disposed of and so on. Every choice we make relies on, and feeds, a highly

interdependent and far reaching way of life where some have much and some have little.

Technology is a hands on, can do profession where people have to be skilled in many of the following: engineering, communicating, designing, developing, innovating, managing, manufacturing, modelling, and systems thinking. But technology also gives us various products which can be used for good or ill or where the benefits are disputed and similarly the processes involved in producing and using technology means that we should all take an interest in whether it provides us and eveyone else with a sustainable future.

14.3.2 Society

A society consists of groups of human beings who are linked together by means of specific systems and customs, rites and laws, and have a collective social existence. Collective life is that in which groups of people live together in a particular region, and share the same climate and similar foodstuffs.

Trees of a garden also `live' together and share the same climate and the same kind of nourishment. In the same manner, gazelles of a herd also graze together, and migrate toge-ther from place to place. But neither trees nor gazelles can be said to have a social life, as they do not form a society.

Human life is social in the sense that it is essentially gregarious. On the one hand human needs, benefits, satisfactions, work, and acti-vity are social in essence, and the social system cannot be maintained but through division of labour, division of profits and a shared common satisfaction of needs within a particular set of traditions and systems.

On the other hand, specific ideas and ideals, temperaments, and habits govern human beings in general, giving them a sense of unity and integ-ration. In other words, society represents a group of human beings, who, under the compulsion of a series of requirements and under the in-fluence of a set of beliefs, ideals and goals, are amalgamated with one another and are immersed in a continuum of collective life.

The common social interests, and particular ties of human life unite human beings together, giving to every individual a sense of unity similar to that experienced by a group of people travelling together in an automobile or an Aeroplane or a Boat, heading towards the same destination, and sharing together the common hope of reaching the destination safely, the dangers of the way, and a common fate.

A group of people board a ship that sets sail on the sea tearing apart the waves. Every one of them has a seat reserved for him. One of the travellers claiming that the seat occupied by him belonged to none other than him, starts making a hole under his seat with a sharp tool.

Unless all the travellers immediately hold his hand and make him desist from doing so, they would risk drowning not only themselves but would also fail to save the poor wretch from being drowned.

14.3.3 Impact of Technology in Daily Life

We are living in an era of advanced technology, where every part of our daily lives is related to the science of craft in one way or another. There's no doubt that over the years technology has been responsible for creating amazingly useful resources which put all the information we need at our fingertips. The development of technology has led to so many mind-blowing discoveries, better facilities, and better luxuries, but at the same has dramatically changed our daily lives. Various highly-developed gadgets, connected to the Internet, have changed the way we communicate, use humor, study, work, shop, play, and behave.

It's not difficult to recognize just how much of the technology we use on a daily basis — from computers, cell phones, laptops, tablets and TVs to refrigerators and convection ovens that cook food evenly. Here are six ways technology impacts your daily life.

It is impossible to explore how each new advanced technology has impacted our lives and how it will impact the future. Technology impacts the environment, people and the society as a whole. The way we use technology determines if its impacts are positive to the society or negative. For example, (POSITIVE IMPACT) we can use corn to make ethanol and this ethanol can be used as fuel. Fuel can be used to run machines and cars which will increase the output of manufacturing industries at a lower cost. (NEGATIVE IMPACT) However, if we decide to shift large quantities of corn to fuel production from food production, humans will be left with no food and this will cause world hunger which even is a worse situation.

14.3.3.1 Positive Impacts of Technology On Society

14.3.3.14.1 Improved Communication

The continuous advances in technology have led to the appearance of numerous new methods of electronic communication, such as social networking websites, emails, voicemails, and video conferences. These advanced communication tech tools have helped us to eliminate time and distance as obstacles to effective communication. This is beneficial not only to our personal relationships, but also to education and business. Technology has improved cultural education by giving children the opportunity to communicate with other children from different countries and learn about different cultures.

Even though technology is beneficial to communication and allows people to stay in touch, you need to find a balance between the cyber world and real world. These technological advancements might be incredible and important in today's society, but you must be careful to not lose sight of the people who are physically around you. While communicating via social media might be fun and more convenient, it is also harmful to our social

skills. Spending quality time with your friends and family to create memorable experiences is especially important for happiness.

14.3.3.14.2 Improved Home Entertainment

Not that long ago, our entertainment experiences used to live in the moment they happened, exist in our memories and find their way in old-fashioned photographs on wall. Today, that has all changed due to the rapid growth of the Internet, mobile connectivity, and social networks.

One of the biggest changes, for example, was the switch from videotapes to CDs/DVDs. This enabled manufacturers to put more data onto the medium. This meant that there were no risks of the tape coming out of the player and getting damaged that easily, and due to the small size of the DVDs, it also meant that a lot more could be stored in the same amount of space.

Another huge technological advance was the introduction of LCD TV. Compared to today's LCD TVs, the previous television screens were inefficient, with lower definition and poor quality. Today we can not only enjoy improved home entertainment, but different types of home entertainment too: from smart TVs to Xbox units.

14.3.3.14.3 Improved Housing and Lifestyle

Housing and lifestyle have also been impacted by the modern technology. The majority of the items that you have in your home today are automated, which makes your life much easier, organized and safer. Thanks in particular to the advanced technological solutions such automated door locks, security cameras and lighting control, our homes are now more secure than ever. Also, thanks to the Internet, we have an easy access to all sorts of information, news, and you're able to shop online any time of the day or night from the comfort of your own home.

14.3.3.14.4 Changed Health Industry

There's no doubt that technology is the driving force behind the huge improvements in healthcare. The majority of the hospitals today have implemented modern technology in hospitals and surgical rooms, which has significantly reduced the mistakes made by doctors. The increased accessibility of treatment is also one of the most amazing ways that technology has changed health care. Besides the technological advancements in hospitals, there are also many health phone and desktop apps that allow you to easily monitor your weight, heart rate, and other health properties at any time of the day. Needless to say, the Internet is our main source of medical information.

An increasing number of people are now using the Internet to diagnose themselves by looking for advice from people on the Internet who have experienced the same symptoms. There are also many suggested treatments and remedies on the web, as well as alternative solutions. Technology has also enabled doctors to use text messages, videos, and e-

mails to consult colleagues from all over the world, which is especially beneficial to patients and doctors that live in rural and under-developed areas.

14.3.3.14.5 Convenience in Education

Technology has impacted every aspect of our lives today, and education is no exception. Technology has changed education in so many ways. First, technology has expanded the access to education and there are huge amounts of information (books, images, videos, audio) that are available through the Internet and that will enable you to empower yourself with knowledge. In addition, online courses are on the rise and most of them are free.

Modern technology has made it simple for students to learn from any place in the world through online education. Also, nowadays students use modern technology in classrooms in order to learn better. For example, students can use iPads to share visual lessons, presentations, and examples with their peers. This has made learning much more convenient and more fun, but most importantly – more effective.

14.3.3.14.6 Convenience of Traveling

Modern transportation technology has made it easier for individuals to travel long distances. Since transport is an important part of our lives, technology has been regularly working on making it more efficient and quicker. The first steamship was built in the 1770s, the first steam-powered train was built in 1798, and the modern car was created in 1886, while the first powered, controlled flight is believed to have taken place in 1903.

Today, we just cannot imagine life without well-developed means of transport like cars, trains, buses, and airplanes which have become a basic need. Over the last decade, the automobile industry is experiencing a technological revolution as the electrical vehicles are taking the world by storm.

14.3.3.2 Negative Impacts of Technology on Society

14.3.3.2.1 Resource Depletion

The more demand for new technologies and advancement of current technologies, the more pressure we put on earth's natural resources. Look at the total number of mobile phones and computers being manufactured today, our population is increasing every day and all these billion consumers demand either a mobile phone or a computer in their homes or offices. This is good news for the manufactures, like Apple or Samsung, the demand for their gadgets is high, but to sustain this demand, they have to exploit Mother Nature for resources like aluminum, once these resources are extracted from the earth plates, they will never return back because it took them a billion years to mature. That means that at one time, we shall be left with no natural resource which can be a problem to the future generation and economy. Likewise, the intensive farming practices will deplete the soil. This makes heavy applications of commercial fertilizers necessary to yield healthy harvests, but also these fertilizers have chemicals which are dangerous to the soil and human lives.

14.3.3.2.2 Increased Population

Technology has helped us live longer by improving health facilities and aiding in the research for solutions for most health problems which affect humans. This is good news for developed countries but is bad news for developing countries which have not been in a position to access these health care benefits brought by technology. In developed countries population growth is controlled by advanced birth control methods, this has helped them balance their population in relation to natural resources and other opportunities which come with a planned population. This is different in developing countries, the rate at which people produce is very high, the mortality rate is high, food is scarce and health care is poor.

14.3.3.2.3 Increased Pollution

Pollution affects the land we grow crops on, the water we drink and the air we breathe. The increased demand for new technologies and advancement of technologies has resulted in many manufacturing and processing factories. As they work so hard to create the best technologies for both society and business, they release harmful chemicals and gasses which have polluted our environment and this has resulted in climate changes (global warming). So the more technology we enjoy, the more we harm our environment. Experts have tried to implement ways of reducing this impact by encouraging factories to go green, to a small extent, this has been achieved through the development of green technologies like; green cars, green computers, but a great effort is still needed to reduce the pollution of the air and the earth.

Check your progress-1
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

1. What is Technology?
2. What is Society?

…………………………………………………………………………
…………………………………………………………………..........................
....

14.4 RELATIONSHIP BETWEEN SOCIETY AND TECHNOLOGY

Technology is very important aspect of human condition as it provides cloths, shelters, foods, transportations etc. Technological determinism is the theory that technology is an autonomous force that changes society and it is also the key force to our society. This provides explanations for many changes that can be observed in society, and it has a

very simple cause/effect form. However, this theory is false, if you think you have an instance, it means you are looking at just one part of a much more complex situation, and ignoring the complex social network that supports the technology.

However, technology is a major and really the main cause of social change as a lot of changes in the society is largely caused by technology but within human control. The computer and email technology has reduced the period it takes to transmit messages between two parties or more as emails sent electronically can be received immediately, thereby saving lots of man hours, and consequently even reducing human and vehicular traffic as people don't need to sometimes travel to send and receive documents.

The computerization of the banking is not necessarily to reduce wage bills and increase profit as new technologies and this computerization brings new employment opportunities for a lot of IT professionals who will manage this technology. The new innovation in banking is to guarantee efficiency and productivity the same applies in the containerization of cargo.

Like earlier specified these technologies were not only technologically determined, it did have its economic, social, cultural and political reasons. These technologies did give room for employment as more people gets employed to manage these technologies, the more income and more revenue for government and ultimately growth in economy, thereby causing political stability which has it cultural advantages as a peaceful society is a viable society.

A society is an organized group of person associated together for purposes such as social, political and religious, while technology on the other hand is an application or even sometime seen as object. This report will help us to determine which of the above mention attempt that is best in relating both technology and society, their strength and weakness, merits and demerits and possible whether they have been able to really answer to the obvious question of whether the society is inflecting technology or its technology that is influencing the society.

14.4.1 Technological Determinism

Technological determinism is one of the three attempts that this report intends to use in determining the relationship between technology and the society. Before I analyze this attitude or theory, it is important to understand what I mean by technology and society.

Technology determinism does explain the relationship between technology and the society, but it does not adequately explain the relationship technology and society. A lot of social changes are also independent as technology does not have any influence. Technology cannot be said to be autonomous as not all social changes and activities are

dependent on technology examples are the computer and email technology where information's, messages and documents are sent electronically, not needing people to take mail from one location to another, but this technology is still largely not dependent as the computer cannot send mails on its own, which means its not out of mans control as people still get employment to receive, read and possibly reply mails, so does not cause any redundancy or unemployment.

Technological Determinism explains relationship between technology and society which asserts that. Technological Determinism is also a popular view about the relationship between technology and society. It is the same Technology Determinism that says new technologies develop the change in society. And the theory presumes that a society's technology drives the development of its social structure and cultural values.

Therefore the term 'technological determinism' is an idea, a belief, a theory that human, individual and societal change are caused primarily by technology, that technology is the main agent of social change. However, there is still the debate whether technological determinism is a theory or an attitude. This refers to the belief that technology is the agent of social change. It is both popular attitude, reflected in such expressions as 'you can't stop progresses and a theoretical position. Looking at the relationship between technological determinism as a theory and as an attitude, determinism is a popular attitude to technology, but it cannot be used as a theory or basis for explaining the relationship between society and technology.

14.4.2 Social Constructionism

Social Constructionism is an "artefact" in a social invention or construction by an individual in a particular society. "Also theory that in addition to express the socially designed ways of our social life which can also be in connect with knowledge achieved and develop within society context, as opposed to realism". (Nilsen)

"Social Constructionism is a term used theories that express the socially originated way of our social life." (Marshall, 1994). Main feature of Social construction theory is viewing knowledge as socially distributed. Through origin relationship between knowledge and its social base knowledge becomes a social product and a factor in social change. Social distribution of knowledge has implications for social construction of identity, depending on which identity is appropriate or desired at a specific point in time. As a result, "whatever the experts do, the pluralistic situation changes not only the social position of the traditional definitions of reality, but also the way in which these are held in the consciousness of individuals" (Berger & Luckmann, p. 115).

14.4.3 Social Shaping

Social shaping is theory that addressed the outcomes or impacts of technological change, the design patterns and implementation of technology. In recent years, social shaping has increased and also gained its recognition. It thus goes beyond traditional approaches, concerned merely to assess the `social impacts' of technology, to examine what shapes the technology which is having these 'impacts', and the way in which these impacts are achieved (MacKenzie and Wajcman 1985). Technological change is often seen as something that takes its own way.

Check your progress-2
Notes: a) Write your answers in the space given below.
b) Compare your answers with those given at the end of the unit.

3. What is technological determinism?

……………………………………………………………………………
…………………………………………………………………….........................
....

14.5 ENVIRONMENTAL JUSTICE, POLICY AND ACTION

The Bhopal gas tragedy is a well known phenomenon that happened at mid night on 3rd Dec 1984 in Bhopal. It was a manmade tragedy that caused suffering to the poor living around the industry and about 3000 person including children died due to leakage of gas called MIC (Methane Isocyanides).

Did the victims of Bhopal got justice in court of law and at international level? Not to the level that damage was done as law was only looking into scientific factors, not the social and economic ones which were more critical as the population that suffered the most was poor, vulnerable and minority in characteristics. Although people were compensated monetarily, the loss they suffered in health, family and livelihood could not be compensated. Therefore, it is imperative to know what is environmental justice and how to help people to safe guard themselves from environmental damages which have non-tangible factors associated with it.

Over the past two decades, environmental justice movement has drawn attention to the disproportionate locationof hazardous waste facilities in the neigbourhood of poor and under privileged sections of society along with other instances of discrimination where vulnerable populations have been exposed to environmental hazards. Out of small and seemingly isolated environmental struggles emerged potent grass root community driven movements that addressed some of these questions. Many of the environmental struggles of 1980s and 90s have become a

unifying theme across race, class, gender, age and geographic lines. Accordingly, the concept of "environmental justice" has emerged as a prominent part of the international dialogue over citizen empowerment and the environment.

A number of environmental justice networks exist today and the previous decade has seen some positive change in the way groups relate to each other. Presently, increasing number of community based groups, conservation groups, legal groups, academic institutions and health related organizations that differentially impact poor people have been set up. Environmental racism and environmental justice panels have become important at national conferences and forums. In a short time environmental justice advocates have made substantial impact on public policy, industry practices, national conferences, research and curriculum development. Therefore the need to know about environmental justice has become important for the new generation of students and researcher.

14.5.1 Environmental Justice

The concept of environmental justice as a mobilizing force emerged in the US in the last forty years, in opposition to practices that were classified as environmental racism. This is defined as 'any policy, practice or directive that differentially affects or disadvantages (whether intentionally or unintentionally) individuals, groups or communities based on race or color'. As defined by (Bullard RD. 1996), environmental justice is the principle that "all people and communities are entitled to equal protection of environmental and public health laws and regulations." In the words of Bunyan Bryant, "Environmental justice is served when people can realize their highest potential".

Environmental justice (EJ) is defined by Miller (2003) as the fair treatment and meaningful involvement of all people regardless of race, color, sex, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies. Fair treatment means that no population, due to policy or economic disempowerment, is forced to bear a disproportionate share of the negative human health or environmental impacts of pollution or environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies.

Environmental justice can be distinguished from environmental inequality (or environmental injustice), which refers to a situation in which a specific social group is disproportionately affected by environmental hazards.

Studies on environmental justice began in the early 1970s, a substantial body of literature was developed that documents the existence of environmental inequalities in the United States (Burch WR. 1976: Freeman MA. 1972; Lave LB, Seskin EP. 1970). These early findings were later amplified by a series of studies focusing on the location of hazardous waste sites, beginning with a study conducted by the U.S. General Accounting Office in 1983. This study documented that African American

communities in the southern United States were playing host to a disproportionately high number of waste sites.

In 1990, Bryant and Mohai organized the Conference on Race and the Incidence of Environmental Hazards at the University of Michigan. The Michigan conference brought together researchers from around the nation who were studying racial and socioeconomic disparities in the distribution of environmental contaminants to discuss their findings and implications. Since 1990, scholars have produced an extensive and sophisticated literature on the dimensions of differential environmental risks based on race and socioeconomic class position (Bryant B. 1995; Mohai P. 1996). Bryant & Mohai (1992) were the first to perform a systematic meta-analysis of empirical studies shedding light on race and class disparities in the distribution of environmental hazards. All these studies found environmental disparities based on either race or income or both. In a more recent review of the literature regarding differential exposures to environmental pollution, Evans & Kantrowitz (2002) found that significant relationships exist between the ethnic and class characteristics of a community and levels of exposure to environmental risk. Across a wide variety of environmental components, including proximity to hazardous waste sites, exposures to air and water pollution, high levels of ambient noise, residential crowding, quality of housing, quality of local schools, and the work environment, communities composed of people of lower SES and people of color were consistently exposed to higher levels of environmental risk.

The key points considered in the environmental justice are that it opposes the destructive operations of multi- national corporations. It demands the cessation of the production of all toxins, hazardous wastes, and radioactive materials, and that all past and current producers should be held strictly accountable to the people for detoxification and containment at the point of production. Environmental justice mandates the right to ethical, balanced and responsible uses of land and renewable resources in the interest of a sustainable planet for humans and other living things.

Environmental justice demands that public policy be based on mutual respect and justice for all peoples, free from any form of discrimination or bias. It requires that we, as individuals, make personal and consumer choices to consume minimum Earth’s resources and to produce as little waste as possible; and make the conscious decision to challenge and re-priorities our lifestyles to insure the health of the natural world for present and future generations. Environmental justice affirms the sacredness of earth, ecological unity and the interdependence of all species, and the right to be free from ecological destruction.

14.5.2 Principles of Environmental Justice

The principles of Environment Justice are that the people who faces social and ecological discrimination on the basis of colour, caste, religion and creed should build a national and international movement against the

destruction taking place in their lands and communities, and re-establish the spiritual interdependence to the sacredness of Earth; to respect and celebrate each other's cultures, languages and beliefs about the natural world and its roles in healing; to insure environmental justice; to promote economic alternatives which would contribute to the development of environmentally safe livelihoods; and, to secure political, economic and cultural liberation that has been denied for over 500 years of colonization and oppression, resulting in the poisoning of communities and land and the genocide of peoples, do affirm and adopt these Principles of Environmental Justice (Home, 1991).

Environmental justice affirms the need for urban and rural ecological policies to clean up and rebuild our cities and rural areas in balance with nature, honoring the cultural integrity of all of our communities, and providing fair access for all to the full range of resources. It calls for the strict enforcement of principles of informed consent, and control on the health related experimental reproductive and medical procedures. It opposes the destructive operations of multinational corporation (Home, 1991).

14.5.3. Concepts in Political Ecology (Class, Race and Gender)

Wolf first used the term Political Ecology in the year 1972. The roots of political ecology lie in ecological and social science. Political ecology emerged from the work of Cultural ecology of Julian Steward, which linked human strategies of ecological success to cultural adaptation, with community ecology, cybernetics and systems theory. Political ecology was also influenced by hazards school (Burton, et al., 1978) with its focus on perception adjustment and management of environmental hazards. Earlier works of political ecology focused on unequal power relations, conflict and cultural modernization under a global capitalist political economy as a key force is reshaping and destabilizing human interaction with the physical environment. Later on Blaikie and Brookfield (1987) defined "Political Ecology" as combination of ecology and a broadly defined political economy. Together this encompasses the constantly shifting dialectic between society and land-based resources, and also within classes and groups within society dependent on different natural resources based livelihoods itself.

Blaikie and Brookfield identified key analytical approaches in political ecology. They include focus on the environmental actions that are shaped by economic, ecological and political marginalization, flawed environmental data and policies that can be understood through multiple lines of explanation. Second approach resulted from the increased integration of third-world agriculturalist into global markets under unequal relations of power and it was viewed as undermining the agriculturalist traditional localized environmental knowledge and long histories of successful adaptation to sometimes harsh and unpredictable environments

(Watts, 1983). Such political-economic approaches in the 1980s and early 1990s largely defined as 'structuralist' phase of political ecology.

The second movement in political ecology was due to an increased awareness of the limits of ecological notions of stability and equilibrium that underlie many popular narratives of environmental change and crisis. Policies that restrict livelihood activities such as smallholder agriculture have often been justified using equilibrium, or 'nature in balance' arguments. Zimmerer (2000) discussed concept of non-equilibrium ecology to show that it is very difficult to make confident statements about long-term ecological responsiveness based on limited temporal and spatial data, and when the evaluations and measurements of ecology are influenced by humans in culturally and gender specific ways.

14.5.4 Environmental Politics (Nature Conservation)

The politics of nature conservation is an interesting case for many reasons. First, it has a relatively long history in the international policy field and is thus particularly suited for the analysis of change. Bilateral treaties on nature conservation were signed in the 1902 between Serbia and Romania and between Serbia and Hungary (1903). Multilateral treaties followed a few decades thereafter with the Convention relative to the Preservation of Fauna and Flora in their Natural State (1933) and the Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere (1940). Secondly, the international politics of nature conservation have frequently led the way in the development of innovative norms and instruments of international environmental politics (Dingwerth, 2008).

Generally, the field is seen as representative of the broader field of environmental politics. Further, conservation politics is characterized by the co-existence of some areas of decision-making that are less directly influenced by economic and societal globalization for example the conservation of the Siberian crane. Likewise other areas in which economic and societal globalization exert considerable direct effects namely the conservation of the world's forests and biological diversity.

It is therefore said that world politics in general has gone from international politics to global governance. According to Dingwerth (2008) the politics of nature conservation can be disaggregated into four major claims, namely a) Internationalisation, b) Diffusion of authority, c) Changing norms of governance and Distribution of governance resources.
Internationalisation deals with growth of conservation politics at international level. The number of multilateral environmental agreements has increased to over 900 in the 21st century (Mitchell 2008). The subject areas like wildlife species and ecosystems and forests gained prominence compared to other conservation related legislative activities from 1976 to 2005.Similarly, the number of multilateral agreements increased rather slowly compared to the number of national laws on conservation issues.

Secondly, diffusion of authority deals with decision-making bodies that can issue binding regulations independently of the consent of each individual state party. Here, the number of agreements with supra-national elements with provisions for majority voting or for compulsory arbitration tribunals increased minimally. The experience from the politics of forest conservation showed that major international processes remain firmly intergovernmental. For example, dealing with issues of judgment on the compatibility between certain provisions of the Convention on Biological Diversity and the Agreement on Trade Related Aspects of Intellectual Property Rights as to the Protection of Traditional Knowledge (2003), the International Court of Environmental Arbitration and Conciliation examines whether there existed inherent contradictions between the obligations of the Convention on Biological Diversity (CBD) and the Agreement on Trade-Related Aspects of Intellectual Property (TRIPS).

Similarly the activities of International Union of Conservation Network (IUCN) have made the transnational pillar of global conservation governance relevant for at least a few decades. It was founded in 1948 and works as non-governmental advocacy organization and a functional international organization, the IUCN has defined the field of nature conservation politics more than any other organization.

Another issue of politics of nature conservation is that the old norm which exclusively recognised states as legitimate rule-makers has given space for the new norm and acknowledges that non-state actors may also create or partake in the creation of legitimate rules. Moreover, compliance with procedural norms of transparency, accountability and deliberativeness is said to have become more central to legitimate rules to their target audiences (Dingwerth, 2007b). It also indicates that participatory norm building has been going on in this phase of politics.

Fourth and finally, shifts in the demand and supply of governance resources are most difficult to determine with precision. The general impression however is that the demand for cognitive and financial resources has indeed increased as transboundary conservation regulation has moved from general conventions to cooperation on more narrowly defined issues. Moreover, knowledge and funds for conservation governance appear to be more evenly distributed among a range of actors as a result of the increasing specialisation of non-governmental organisations and the decrease in the relative shares of government funding for conservation-related projects.

14.5.5 Indigenous Peoples and Environmental Justice

The study of indigenous movements and violence, indigenous resource rights and knowledge, and the deployment of indigenous status and identity all raise questions about the politics and ethics of research. That the above topics of anthropological interest have become the tools by which indigenous peoples articulate their identities, stake claims to local resources, and fight for their rights in regional, national, and international

arenas poses moral and ethical challenges to anthropologists. When we speak of Environmental Justices, the issues of Indigenous people and concerns of their human right automatically become very significant. The legal issues concerning them lack consistency in domestic and international environmental policies AND are further compounded by issues of justice and equity. For at least two decades, the term "environmental justice" has been used to highlight the distributional impacts of the dominant society's environmental decision-making process on disadvantaged communities, including the poor and racial minorities. At the global level, such disparities are extended to the inequities between the North and the South, between developed and developing countries. Within these divides, complex issues of economics, environmental integrity, and human rights get reflected in terms such as "environmental racism," "radioactive genocide," and "ecocide"(Greinde and Johansen, 1995).

The question is how do indigenous peoples fit within the debate on environmental justice? In general, an indigenous claim for environmental justice is categorized into two sections. The first category consists of Native claims for regulatory control over reservation lands. These claims constituted the focal point of the first generation of environmental justice claims within the domestic arena. The second category involves claims by indigenous peoples that they have unique interests and need to be represented as "rights-holders" in national or international decision-making that impacts their communities. These claims for "environmental self determination" rest upon the unique cultural and political status of indigenous peoples throughout the world and evoke a human rights-based set of norms, rather than a domestic sovereignty model. The second generation of indigenous environmental justice claims fits into this category (Tsosie, 1995).

The discussion on environmental justice in the 1990s focused on domestic efforts to protect North America and Canada tribal autonomy over the environment. Indigenous communities whose members predominantly practice traditional life ways are particularly vulnerable to developmental change. However, because development change is often thought to be the inevitable due to industrialization and intentional policy of national governments generally take place and are not in control of Indian Tribal peoples, the discussion in this area must go beyond tribal sovereignty and evaluate the rights of indigenous peoples as unique cultural and political groups. Therefore, it is argued that right to environmental self determination for indigenous peoples, which would allow them to maintain their unique cultural and political status as the peoples of traditional lands before the establishment of current national boundaries.

14.5.6 Environmental Justice Related to Consumption, Sustainability

Environmental justice (EJ) has focused on inequalities in exposure to environmental burdens and hazards, such as levels of pollution and the sitting of hazardous facilities, and to a lesser extent on unequal access to environmental amenities and assets. More recently, social justice issues

related to the environment have gained increasing interest in politics and philosophy (Shrader-Frechette,2005). Research on sustainable consumption (SC) is more recent and perhaps more multi-faceted, encompassing topics from sustainable social innovations in local communities to technical determinations of global ecological footprints of consumption (Southerton et al., 2004).

14.5.7 Environmental Justice and Human Rights Issues

Human rights as a philosophical concept refers to the reasonable demands for personal security and basic well-being that all individuals can make on the rest of humanity by virtue of their being members of the species Homo sapiens (Shue H, 1980). Building on a foundation of natural law, political principles, national and international legal instruments, and humanitarian agreements, the UN concept of human rights acknowledges that in all times and places, reasonable people, regardless of political affiliation demand certain minimum standards of behavior by governments towards their own citizens (Laurd E, 1967). Collective and indigenous rights are now part of the human rights framework; the challenge is to make individual and collective rights mutually reinforcing (Steavenhagen R,1989). Indigenous rights have been the special legacy of Anthropology and cultural relativism, as well as a target of anthropological concern in criticizing modernization trends and development practices (Bodley J.H, 1988).

The right to health, a decent existence, work and all occupational safety and health, the right to an adequate standard of living, freedom from hunger, an adequate and wholesome diet, and decent housing, the right to education, culture, equality and nondiscrimination, dignity, and harmonious development of personality, the right to security of a person, and of the family, the right to peace, and the right to development are all rights established by existing United Nations Conventions (United Nations, 1991). These rights represent the ideals that government strives to provide to its citizens i.e. basic life requirements that all human are entitled to. Environmental degradation in itself is not a new for human survival. The rise and fall of many past societies can be explained in part by the ability to modify the immediate environment and subsequent inability to prevent escalating environmental degradation.

Tribal and indigenous society is struggling to survive in the face increasing desertification, deforestation, declining fisheries, poisoned food, polluted water and air, and climatic extremes weather events that continue to intensify: floods, droughts, hurricanes. Most of present environmental crisis is difficult to define them, to understand their origins, and to understand their consequences. These crises are rarely confined region or resources, but they are mostly outcome of development action of mega polcieis of development without considering the right and needs of local tribal population Generally, human environmental rights abuse occurs because people happen to be living in area rich in natural or strategic mineral resources. The tribal areas are open spaces far from densely populated regions, and therefore become the logical place for military

exercises, weapons testing, the storage or disposal of hazardous wastes for example military exercise zone in Hoshangabad district of Madhya Pradesh, were tribal living around this area faces many problems. These isolations also attract those who are seeking economic, political, and environmental alternatives for example the rich coal areas inhabited by tribal population in India. For these reasons, like Narmada dam resident peoples become displaced, alienated from their traditional holdings, and experience increasing difficulty in maintaining individual, household, and community health (Burger,1990).

Human environmental rights abuse also occurs because people are believed to be in the way of progress and national needs, which supersede individual and community concerns. Thus, people are forcibly relocated while governments and industry build dams, expand export-oriented intensive agriculture, develop international tourist facilities, and set aside wilderness to save the bio-commons and attract foreign eco-tourist dollars (The Ecologist, 1993; Johnston, 1994). Collective and individual human rights are also part of human rights framework and it is important to provide justice in this regard. Abuse of these rights takes place under the demand for land, property, large water projects, ecotourism, etc. Recent Forest Right Act 2006 of government of India takes care to protect these two dimensions relating to environmental justice in India.

14.5.8 Environmental Justice and Human Actions

The abuse of human environmental rights generally occurs within a cultural, as well as political economic and biophysical context. Human environmental rights violations often occur as a result of efforts to gain control of land, labour, and resources of politically land/or geographically peripheral peoples. The cultural context involves a process of social construction, where marginal peoples are seen to be biologically, culturally, and socially inferior, providing the justification for state domination. The discourse of dominance takes several forms in state efforts to justify taking land, labour, and resources. The poverty label is constructed by ignoring or claiming as nonexistent the existing subsistence-based economies and provides the rationale for economic development efforts. Ignoring the importance of subsistence or barter-based economies also allows the inference that surrounding lands are unoccupied or are wilderness areas that can be claimed and used by the state. Legally, state control over peripheral population territory and resources is supported by Western notions of property rights: the contention that resources held in common do not in face constitute “actual property rights” (Berge, 1994; The Ecologist, 1993).

Institutional employment of the physical, conceptual, and cultural distancing mechanisms mentioned above contributes significantly to the inability to governments to protect basic human rights. Thus, dysfunctional governance is tied to the culture and structure of power as much as it is affected by the constraints resulting from economic actions. The resulting crises are incredibly complex. Human environmental crises are rooted in

histories and political economic relationships, and characterized by a synergistic and cumulative nature.

14.5.9 Resistance and Political Action

Meanwhile distributional inequity (relates to inequitable distribution of wealth and power across the human class) is crucial to the definition of justice in the environmental justice movement, recognition as an element of justice is also a central concern. The main point is that environmental justice activists mostly see themselves as outside the cultural mainstream; as such, their identities are devalued. This recognition of group demanding environmental justices both at the personal level and at the level of community are mostly not given by the elites in any condition. Therefore, the construction of inclusive, participatory decision-making institutions is at the centre of environmental justice demands. Environmental justice activists call for policy-making procedures that encourage active community participation, institutionalize public participation, recognize community knowledge, and utilize cross-cultural formats and exchanges to enable the participation of as much diversity as exists in a community.

The demand for this type of authentic, community-based participation comes out of the experience of disenfranchisement. To challenge a range of cultural, political, and structural obstacles constructed by cultural degradation, political oppression, and lack of political access, communities are coming to demand a voice and authentic participation. Rather than attempt an analysis of the thousands of non-governmental organizations (NGOs) and grassroots organizations doing some sort of work identified as environmental justice. I want to focus on some of the potent issues of the moment and describe how justice is addressed in different scenario.

The recent actions against the institutions of the new global economy like the World Trade Organization (WTO), the International Monetary Fund (IMF), and the World Bank, encompass themes of environmental justice. Related to this, movements for food autonomy and security are also articulated to the language of justice for both people and nature. Finally, numerous movements for indigenous rights in both the North and South are imbued with these issues of justice. These movements encompass notions of environmental justice because in each of the individual focuses, part of what is to be distributed are environmental good and bad, part of what is to be recognized are cultural ways of living with nature, and one aspect of participatory demands relate to environmental decision-making. Particularly, at the centre of the recent protests against global financial and trade institutions, against the globalisation of the food system, and for indigenous rights, is the issue of equity; economic or distributive injustice is a key and constant rallying concern. The most basic critique is that the industrialization and western model of development increases and exacerbates inequity, both between the North and the South and between elites and the impoverished in southern nations, not just in

economic goods, but in environmental good and bad as well. The concern regarding who benefits and at whose expense, as well as a demand for the accounting of the full costs of trade to communities, workers, and Nature, are key.

14.5.10 Policy and Advocacy

Anthropology as a field has contributed, and continues to contribute, to social policy research, practice, and advocacy in a number of different ways; it hastaken on increasing relevance as the world is rapidly being transformed by the process of globalization. The subfield of Environmental Anthropology exhibits a growing engagement with both domestic and international environmental policy. This engagement is evident in works like Patricia Townsend's 2000 book entitled Environmemal Anthropology: From Pigs to Policies and the summer 2007 issue of Human Organization with its special section on "Anthropology and Environmental Policy." There are good reasons for anthropologists to be concerned with environmental policy: it not only affects the land and resources that people depend on for their livelihoods out also have major implications for social justice and human health (Susan Charnley and William H. Durham, 2010).

Realizing the need for a structured research and advocacy to assert case studies and anthropological perspectives on the human rights and environment justice, a committee named Human Rights and Environment (HRE) Committee, which had grown to include some 150 people: mostly anthropologists, and a few sociologists, geographers, and ecologists was formed and they responded with case-study contributions. Johnsten (2010) served as the HRE chair and worked with the committee to draft, compile, and review case submissions that formed the core for annual reports to the UN Special Rapporteur, supporting in small part the broader effort to shape a Draft Declaration of Principles on Human Rights and the Environment.

Through such forums collectively, anthropologists advocated that cultural groups as well as individuals had rights; these rights were being abused by broad processes, such as militarism and development; people have no recourse due to the lack of a viable judiciary and the inability to bring some actors (state governments, transnational corporations, international financial institutions) to a regional or international court where claims can be filed and some measure of remedy provided. Anthropologists called for national and international governance that recognized the relationship between human rights and environment and that worked towards environmental justice. These demands were articulated in project reports, SfAA (Society for Applied Anthropology) and AAA (Applied Anthologists Association) newsletter articles, and edited collections in books and journals (Johnston 1992).

The Nathan Cummings Foundation grant allowed them to publish and send 450 free copies of a human rights and environment booklet to a global network of environmental organizations, human rights groups, and the foundations that sponsor their work (Johnston 1993). James Anderson (1973), in review essay called for an Anthropology that is in its embrace of a holistic, systemic dynamic, ecology produces transformative insights and

improves the biocultural reality of life on this planet. He called for an Anthropology that has significant influence in how we think about the human environmental relationship, and how we attempt to address the serious problems that threaten survival.

Presently Environmental Anthropology, documents, assesses, and interprets local conditions, and through these efforts seeks to understand and improve the human condition. Through research work and its findings anthropologist influence broad publics and specific audiences with the goal of shaping policy agendas in ways that might forestall or prevent future crises (Hale 2008). For example, anthropological insight and voices shaping the public understanding of the social context of recent “natural disasters” (Katrina, Sri Lanka, Haiti), drawing public attention to water, public health, and vulnerability in the making of disaster and in the response to disaster (Johnston 2008; and Schuller 2010). Similarly, place-based and comparative anthropological research has led to a widespread engagement in global advocacy and negotiations over environmental justice.

Obviously, environmental anthropologists rarely work at as big and complex scale. But the problems of deforestation, displacement, disease, rights violations, and the rest are often found on smaller scales as well. Given environmental anthropology’s ongoing engagement with environmental problems at multiple scales, and given the rise in policy focus documented here, we urge environmental anthropologists to bring quantitative and environmental data back into their work, whatever its focus. Doing so, we believe, will make us more effective in contributing both to policy and to the solution of environmental problems (Susan Charnley and William H. Durham 2010).

Check your progress-3

Notes: a) Write your answers in the space given below.

b) Compare your answers with those given at the end of the unit.

4. What is environmental justice?
5. State the environmental policy

…………………………………………………………………………
…………………………………………………………………………
…………………………………………………………………………

14.6 LET US SUM UP

In this unit, you have learnt about the meaning of technology and society, impact of technology on society, environmental justice, policy and action. Thus, this unit would have brought you closer to know the concept of above said. This content will play a very important role in your future environmental services.

14.7 UNIT- END- EXERCISES

1. Explain the impact of technology on daily life.
2. State the relationship between technology and society.
3. Explain the environmental justice, policy and action

14.8 ANSWER TO CHECK YOUR PROGRESS

1. Merriam-Webster says technology is: "Application of knowledge to the practical aims of human life or to changing and manipulating the human environment. Technology includes the use of materials, tools, techniques, and sources of power to make life easier or more pleasant and work more productive. Whereas science is concerned with how and why things happen, technology focuses on making things happen."
2. A society consists of groups of human beings who are linked together by means of specific systems and customs, rites and laws, and have a collective social existence. Collective life is that in which groups of people live together in a particular region, and share the same climate and similar foodstuffs.
3. Technology determinism does explain the relationship between technology and the society, but it does not adequately explain the relationship technology and society. A lot of social changes are also independent as technology does not have any influence. Technology cannot be said to be autonomous as not all social changes and activities are dependent on technology examples are the computer and email technology where information's, messages and documents are sent electronically, not needing people to take mail from one location to another, but this technology is still largely not dependent as the computer cannot send mails on its own, which means its not out of mans control as people still get employment to receive, read and possibly reply mails, so does not cause any redundancy or unemployment.

   Technological Determinism explains relationship between technology and society which asserts that. Technological Determinism is also a popular view about the relationship between technology and society. It is the same Technology Determinism that says new technologies develop the change in society. And the theory presumes that a society's technology drives the development of its social structure and cultural values.
4. The concept of environmental justice as a mobilizing force emerged in the US in the last forty years, in opposition to practices that were classified as environmental racism. This is defined as 'any policy, practice or directive that differentially affects or disadvantages (whether intentionally or unintentionally) individuals, groups or communities based on race or color'. As defined by (Bullard RD. 1996),

environmental justice is the principle that "all people and communities are entitled to equal protection of environmental and public health laws and regulations." In the words of Bunyan Bryant, "Environmental justice is served when people can realize their highest potential".

Environmental justice (EJ) is defined by Miller (2003) as the fair treatment and meaningful involvement of all people regardless of race, color, sex, national origin, or income with respect to the development, implementation and enforcement of environmental laws, regulations, and policies. Fair treatment means that no population, due to policy or economic disempowerment, is forced to bear a disproportionate share of the negative human health or environmental impacts of pollution or environmental consequences resulting from industrial, municipal, and commercial operations or the execution of federal, state, local and tribal programs and policies.

Environmental justice can be distinguished from environmental inequality (or environmental injustice), which refers to a situation in which a specific social group is disproportionately affected by environmental hazards.

5. The politics of nature conservation is an interesting case for many reasons. First, it has a relatively long history in the international policy field and is thus particularly suited for the analysis of change. Bilateral treaties on nature conservation were signed in the 1902 between Serbia and Romania and between Serbia and Hungary (1903). Multilateral treaties followed a few decades thereafter with the Convention relative to the Preservation of Fauna and Flora in their Natural State (1933) and the Convention on Nature Protection and Wild Life Preservation in the Western Hemisphere (1940). Secondly, the international politics of nature conservation have frequently led the way in the development of innovative norms and instruments of international environmental politics (Dingwerth, 2008).

   Generally, the field is seen as representative of the broader field of environmental politics. Further, conservation politics is characterized by the co-existence of some areas of decision-making that are less directly influenced by economic and societal globalization for example the conservation of the Siberian crane. Likewise other areas in which economic and societal globalization exert considerable direct effects namely the conservation of the world's forests and biological diversity.

   It is therefore said that world politics in general has gone from international politics to global governance. According to Dingwerth (2008) the politics of nature conservation can be disaggregated into four major claims, namely a) Internationalisation, b) Diffusion of authority, c) Changing norms of governance and Distribution of governance resources.

Internationalisation deals with growth of conservation politics at international level. The number of multilateral environmental agreements has increased to over 900 in the 21st century (Mitchell 2008). The subject areas like wildlife species and ecosystems and forests gained prominence compared to other conservation related legislative activities from 1976 to 2005.Similarly, the number of multilateral agreements increased rather slowly compared to the number of national laws on conservation issues.

Secondly, diffusion of authority deals with decision-making bodies that can issue binding regulations independently of the consent of each individual state party. Here, the number of agreements with supra-national elements with provisions for majority voting or for compulsory arbitration tribunals increased minimally. The experience from the politics of forest conservation showed that major international processes remain firmly intergovernmental. For example, dealing with issues of judgment on the compatibility between certain provisions of the Convention on Biological Diversity and the Agreement on Trade Related Aspects of Intellectual Property Rights as to the Protection of Traditional Knowledge (2003), the International Court of Environmental Arbitration and Conciliation examines whether there existed inherent contradictions between the obligations of the Convention on Biological Diversity (CBD) and the Agreement on Trade-Related Aspects of Intellectual Property (TRIPS).

Similarly the activities of International Union of Conservation Network (IUCN) have made the transnational pillar of global conservation governance relevant for at least a few decades. It was founded in 1948 and works as non-governmental advocacy organization and a functional international organization, the IUCN has defined the field of nature conservation politics more than any other organization.

Another issue of politics of nature conservation is that the old norm which exclusively recognised states as legitimate rule-makers has given space for the new norm and acknowledges that non-state actors may also create or partake in the creation of legitimate rules. Moreover, compliance with procedural norms of transparency, accountability and deliberativeness is said to have become more central to legitimate rules to their target audiences (Dingwerth, 2007b). It also indicates that participatory norm building has been going on in this phase of politics.

Fourth and finally, shifts in the demand and supply of governance resources are most difficult to determine with precision. The general impression however is that the demand for cognitive and financial resources has indeed increased as transboundary conservation regulation has moved from general conventions to cooperation on more narrowly defined issues.

Moreover, knowledge and funds for conservation governance appear to be more evenly distributed among a range of actors as a result of the increasing specialisation of non-governmental organisations and the decrease in the relative shares of government funding for conservation-related projects.

14.10 SUGGESTED READINGS

1. Chitamber, JB (1990) Introduction to Rural Sociology. Wiley Eastern Pvt. Ltd, New Delhi.
2. Desai, AR (1978) Rural Sociology in India. Popular Prakashan, Bombay.
3. Sharan, AK (1999) Social Psychology. Commonwealth Publishers. New Delhi
4. Desai, A.R. 1959 Social Background of Indian Nationalism. Popular Prakashan, Bombay.
5. Dube, S.C. 1955. Indian Village. Cornell University Press: New York
6. Bertrand, Alvin Lee, ed. Rural sociology: an analysis of contemporary rural life. McGraw-Hill, 1958.
7. Gillette, John Morris. Constructive rural sociology. Sturgis & Walton Company, 1915.
8. Mukherjee, Ramkrishna 1979. Sociology of Indian Sociology. Allied Publishers, Bombay.
9. Singh, Yogendra. 1979. "On the History of Sociology in India" in Mohini Mullick (ed.) Social Enquiry: Goals and Approaches. Manohar, Delhi.
10. Srinivas, M.N. and Panini 1986. "The Development of Sociology and Social Anthropology in India" in T.K. Oommen & Partha N. Mukherji (eds) Indian Sociology Reflections of Introspections, Popular Prakashan, Bombay. Emergence of Sociology in India.
11. https://tech.co/news/6-main-ways-technology-impacts-daily-life-2017-02